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THE COLUMBUS MEETING OF THE WESTERN GAS ASSOCIATION.

The choice made by the members of the Western Association, when its organizers selected the month of May as the most appropriate time for holding their annual gathering, was applauded on all sides as a happy one. To be sure, one can hardly make safe calculation on what the future is to bring forth; and particularly insecure is the reputation that is sought to be based on one's aptitude for truly foretelling the probable atmospheric conditions which are to prevail on certain dates ahead. Now, one would naturally suppose that the middle days of May might be safely considered within the pale of steadfast skies, bright sunshine and balmy breezes; but past and present experiences lead to the inevitable conclusion that even genial May is not less fickle than her other companions on the calendar. Leaving New York, on the evening of Monday, May 10th, a light overcoat was far from uncomfortable, indeed it might be called a necessity, for the salt-laden east winds, fresh from contact with the briny waters of the Atlantic, were ready to find the weak spots in frail humanity that had not yet fully recovered from or cast off the physical conditions resulting from the tiresome, weary battle with the past winter's buffetings. As the journey was continued west from Pittsburgh the traveler was inclined to look with less favor upon the ministrations of the overcoat, and when the stopping place of Columbus bore in sight one might be forgiven for wishing, nay, praying, that the clothiers would in the near future invent a garment which might act as a light coat in one place, and assume the functions of a seersucker jacket in another. However, the Western Association has had a pretty fair share of luck in respect to favorable weather conditions in the past, and as it is only right and to be expected that "into each life some rain must fall; some days be dark and dreary," we may reasonably hope that the weather clerk will be more considerate in '87; or rather that the aforesaid clerk will, in '87, remember the dose he administered in '86. Without any attempt at exaggeration, the storms which prevailed at Columbus on the evenings of May 11th, 12th and 13th were remarkable for strength, and even ferocity. Rain, in most tremendous volumes; hail that rattled loud and fast; lightning that blinded one by its sharpness and nearness; thunder, grand-voiced and incessant. Added to these grand atmospheric disturbances came constant and appalling messages from other portions of the West, which told of how the cyclones and floods were devastating farm and forest alike; while even cities did not pass unscathed through Nature's ordeal. On the evening of the 11th many of the clansmen had reported at the Neil House; but it was perhaps then apparent (after last regular train hours had passed), from the comments of those who had taken note of such matters in the past, that the usual preceding night's attendance was rather slimmer, in point of numbers, than customary. This point was presented to back up the forecast that the Western would not be vouchsafed the grand assembly which has hitherto been such a prominent and pleasing feature of its annual gatherings. We are sorry to say that the prediction was verified in some degree, but railroad washouts—all-rail communication with the great city of Cincinnati was cut off for quite a lengthy period—were responsible for the defection. Indeed we heard from one Kentuckian—no less a personage than Brother Barret, of Louisville—who invoked the wire to say he was "stuck" in such a town and could get no further; and it goes without saying that when Barret stops it is simply because the obstacle is insurmountable, or the gap is impassable. So it was with dozens of others. Not to be considered as desiring to pick out flaws with seeming readiness, we point to the fact that Columbus, geographically speaking alone, was rather an unsuitable place for holding the annual session of the Western Association. Its members are so widely separated from one another, in the matter of respective location, that, to insure a thoroughly representative gathering, as central a point of convening as is possible to select should be chosen. Otherwise, too, the burden of railroad

travel imposed upon many is excessive, and can in no way be compensated for by the remembrance that, on the other hand, the routes to be traveled by some of the others are extremely scant.

Despite the prevalence of empty seats, which may truthfully be said to have been the only fly in the Association's ointment, roll-call developed an attendance of close on to eighty of the rank and file. Grave and kindly, as are his wonted moods, President Somerville welcomed the delegates, and flanked by as clever an aide as ever occupied a recorder's chair, in the person of Littleton (surnamed "Gus," by common consent), the machinery of the Ninth Annual Convention was set in motion. One or two minor routine matters disposed of, the President read the annual address. Having called attention, in the opening sentences, to the perils and anxieties of the past winter (which it is almost needless to mention here was one of extreme rigor and severity in the Western section of the country), congratulating the Association on its present prospesity, and the sure promise of future advance presented by its past records, and then paying a tribute to the memory of those who had been parted from them by death during the past year, the speaker discussed, in that simple and unostentatious, but clear-cut and lucid language so characteristic of him, those questions which pertain to the gas business of our time and country. Of course, we all look upon the varying phases of this complex craft through differing lights; and we do not wish to say that an auxiliary water gas apparatus cannot be a genuine assistant to a coal gas plant under any circumstance or condition, but of that genuineness individuals must and will be the sole judges. If coke is a drug at Indianapolis, or at any other point, perhaps it might be policy to convert it into water gas; but, if we may be pardoned for digressing too far from the main issue, it might be in order to say that the gas makers, as a rule, appear to have been most remiss in the matter of creating a market for the surplus of their coke residual. Coke has a bad name and fame with the users of fuel in many districts, and that prejudice must be removed. We are aware Mr. Somerville is not to be reproached on the above score, nor do we believe him to be an enthusiastic advocate of water gas, for he knows of its disadvantages—both to the manufacturer and to the consumer. To his advice that those, who like himself, find their local coke markets glutted, should give the benefit to their own townspeople of cheap fuel, we yield a hearty assent. Mr. Somerville does not enthuse greatly over the subject of the joint supply, by existing gas companies, of gas and electricity, and his advice on the question although not very pointed or positive, at any rate, possesses the merit of brevity. His wise and temperate argument on the importance of the part played by the plumber in the distribution of gas is sensible, timely and accurate; and, in fact, if the address contained not another line, that argument alone would stamp it as of exceeding worth. In connection with the natural gas supply, as referred to by Mr. Somerville, we expect that many of his auditors would like to know all about the "product of nature's laboratory," but we opine that many of the queries made are not to be solved by mere mortals. To speak seriously, it would be well to bear in mind his verdict that the manufacturers who have discarded coal for natural gas in the working of their furnaces will, when the supply is exhausted, have to return to the black diamond, and if Mr. Somerville thus impliedly admits that producer gas is a failure, we believe still less in the staunchness of his views on the values of water gas. Another powerful feature of his address is contained in the subject of gas commissions, and we are glad to record his avowal that Massachusetts, through her legislative action, has caused a rift in the clouds through which a hopeful light pours in. Indeed, it was certain that the sage of Indianapolis would interest his hearers, but we venture to assert that none were really prepared for the treat afforded them.

The pilgrims who journeyed from the East expected, of course, to be grasped by the right hand of fellowship; but when the true meaning of Western fellowship developed itself, in the shape of the treatment accorded them, perhaps they know it better now than was the case before. The selection to honorary membership of Messrs. Wood, Slater, and Harbison, was not only a tribute to their own personal worth, but may be also accepted as evidence of the close kinship which exists between the gas men of the States.

The papers presented were sufficient, when taken in conjunction with the masterly majority report presented by the special committee appointed last year to investigate the subject of the formation of State gas commissions, to nicely fill in the time allotted to the business portions of the sessions. It is to be regretted that the Chairman of the Committee, Mr. Samuel Prichitt, could not agree with the findings of his colleagues; but as limited space precludes extended mention, of the report and its conclusions, in our columns at this present writing, we will take temporary leave of the subject by remarking that the committee performed its whole duty in the premises. Not only that, but its after-effect must be such as to cause little short of a revolution in the present system of laws applicable to and governing the operations of gas companies. The majority report received the warmest commendation, and its propositions were adopted as the sense of the Association.

We have great hope in regard to the outcome of the discussion of this question at the Columbus gathering; and perhaps it may be the pleasant duty of some President of the Western Association, holding office in the near future, to announce to his brethren that the clouds, in which ex-President Somerville perceived the rift that admitted the daylight, had been entirely dissipated, and that gas shareholders, managers, and consumers were alike dwelling in the security guaranteed them by an honest administration of well-designed, equitable statutes operating on and applicable to the regulation of the gas commerce of the country.

Regular business occupied the two first days, and but little time was wasted. In fact, strict attention to routine is always a feature of our various Association gatherings. Quite an addition was made to the muster rolls in consequence of the election of new members. But, to refer again to the unpleasant weather conditions experienced, which in this case is absolutely necessary, it was found obligatory, on the second day, to change the assembly room. The intolerable "muggy" heat of the 13th rendered the parlors of the Neil House simply unbearable, and Mr. McMillin came to the rescue by placing the Board of Trade room—a most commodious, lofty, and elegant apartment in the Board of Trade building—at the disposal of the delegates. The sessions were here carried on with renewed zest. The annual election resulted in the choice of Mr. John Fullagar, Cincinnati, Ohio, as President; Messrs. E. McMillin, of Columbus, Ohio, and G. G. Ramsdell, of Vincennes, Ind., as First and Second Vice-Presidents; "Gus." Littleton, of Quincy, Ills., of course, succeeding himself as Secretary and Treasurer. We do not like to accuse Brother Lansden of "lobbying," but at all events St. Louis, Mo., will receive the visitors to the Tenth Annual.

Upon adjournment of regular business sessions—early on the evening of the 13th—the delegates visited the Columbus Gas Works, under "Mac.'s" tutelage, where it was intended that an exhibition of various gas engines would be held. Owing to some misunderstanding on the part of the agents, but one specimen was in duty—a very handsome sample of the Korting-Lieckfeld type. The engine is new to this country, but Mr. Ebeling, the American representative of the European owners of the patents, has determined to push its introduction here. It is certainly a most taking apparatus to the eye, and if future practice bears out the claims of those interested in its sale a wide field will be found for its application.

This year the Association acted as its own entertainer in the matter of a banquet; and while we applaud and support the course pursued, and hope it will become a fixed and followed rule in future years, candor compels us to say that the Neil House *chef* is not yet a master of the culinary art. Among the guests other than gas men assembled round the festive board were seated Governor Foraker, of the Buckeye State; Mayor Walcutt, of Columbus; and President Reynolds, of the City Council; and Mr. Robinson was also there—but not the "Doctor." Friday was entirely devoted to sight-seeing, and the public buildings (including the Penitentiary, although all the delegates managed to "escape") and institutions of the city were visited and inspected. Take it all in all, despite the unfavorable weather and the interruption to railroad communication, with its unavoidable cutting down of the attendance, the ninth annual gathering was a success. We desire, on behalf of ourselves and companions of the Eastern delegation, to make suitable acknowledgement of the courtesies tendered us. Indeed, our obligations to them are fast piling up.

THE OCEAN COAL MINES IN OPERATION.

We are enabled to say that all possible danger of a gas coal famine has been averted, as it is understood the principal mine owners have made arrangements which will result in securing full supplies of coal for the present season. We have official information that work was resumed in the Hon. W. L. Scott's Ocean Mine collieries on date of May 10th, and have been given to understand that the terms on which the resumption is based are quite satisfactory to the shippers and the miners. The owners of the Breckenridge colliery have begun mining operations, and it is understood that the first shipments of Breckenridge cannel were made on June 1st. The advent of this enricher on the American market will be hailed with satisfaction.

A Valuable Table for Gas Engineers.

The enterprise of those in control of the business department of the American Meter Company is once more conspicuously shown in the publication for free distribution of a handsome chart containing a series of "logarithmic tables for calculating the illuminating power of gas from the usual photometrical observations." The tables furnish figures applicable to gases ranging between 14 and 32.98 candles in illuminating value; and every gas engineer in the country should lose no time in securing a copy. Copies may be obtained by writing to any one of the different branches of the American Meter Company. For addresses of same, see our advertising pages. The typographical style of the chart is nothing short of perfection.

[Official Report.]

Ninth Annual Meeting of the Western Gas Association.

Held at the Neil House, Columbus, Ohio, May 12 and 13, 1886.

First Day—Morning Session—May 12.

At 10 o'clock A.M. the members of the Western Gas Association assembled in the Neil House, Columbus, Ohio, and were called to order by the President, Mr. James Somerville, of Indianapolis, Ind. Secretary A. W. Littleton, of Quincy, Ill., at his post of duty, was prepared to "let no dues escape."

Roll Call.

The Secretary now read the membership list, and the following-named delegates responded thereto:

Honorary Member—Jos. R. Thomas.

Active Members.

Agard, W. A.	Hicks, G. C.	Phillips, J. H.
Bates, T. A.	Harris, G. S.	Prichitt, S.
Beck, F.	Humphrey, R. C.	Printz, E.
Bowers, W. T.	Haselmeyer, A.	Persons, F. R.
Bixby, W. A.	Hauk, C. D.	Ramsdell, G. G.
Bradley, C. D.	Jenkins, E. H.	Rice, E. S.
Cosgrove, T. A.	King, E. J.	Raynor, C. H.
Collins, C.	Kennedy, J. M.	Runner, Z. T. F.
Cressler, A. D.	Kellogg, L. L.	Ranshaw, H.
Converse, C. M.	Keller, C. M.	Russell, D. R.
Chollar, B. E.	Lansden, T. G.	Roots, D. T.
Connelly, T. E.	Littleton, A. W.	Smith, Thos.
Diall, M. N.	Lindsley, E.	Somerville, Jas.
Dell, John.	Mitchell, J. K.	Spencer, R.
Douglas, S. H.	Montgomery, J.	Stacey, Wm.
Dunbar, J. W.	McMillin, E.	Scofield, L. K.
Daniels, J.	McDonald, W.	Smallwood, J. B.
Down, W. H.	Murdock, G. T.	Sumner, Wm.
Egan, Jas.	McIlhenny, J.	Smedberg, J. R.
Faben, Jr., C. R.	Morgans, W. H.	Starkweather, G. F.
Gimper, John.	McClary, N. A.	Stannard, A. B.
Green, Jas.	Murphy, J. M.	Thompson, H. C.
Griffin, J. J.	Mayer, J. F.	Thompson, J. D.
Howard, J. B.	Odiorne, W. H.	Wallace, Wm.
Hyde, G. A.	Perkins, B. W.	Walker, Jr., J. H.
Harthan, H.	Pratt, H.	

On motion, the reading of the minutes of last annual meeting was dispensed with, and the American Gas Light Journal's publication of same was ratified as a correct record.

PRESIDENT'S ADDRESS.

President Somerville then delivered the following address:

Gentlemen of the Western Gas Association:—I congratulate you to-day on our meeting together in this beautiful capital of the grand old Buckeye State. It is most pleasant to meet you all here after the anxieties of a long, hard and dreary winter, during portions of which season, in the districts where we operate, intense and prolonged cold has been an unwelcome visitor. For days at a time the thermometer appeared unable to move its spirit from the chilling figure of 16° below zero. Need I recall to you the depression felt during the days when every exposed piece of iron was in a state of extreme tension; when even steam seemed to lose its heating power; when the tinkle of the telephone bell in your room at night filled you with the greatest apprehension; and when, through it all, you had to keep up a full supply of gas. Now, however, with the return of gentler atmospheric conditions an opportunity is afforded us to repair damages, and to meet here together under such favorable circumstances in our annual convention, and we may forget the rigors of the past while amicably discussing our plans, difficulties, reverses, and successes.

I have also to congratulate you upon the flourishing condition of our Association. Starting, as it did, some nine years ago, with only sixteen members, it has gone on steadily forward, until now we may be forgiven for exulting over the fact that that membership has reached the imposing figure of almost 200. I feel I owe this Association much, and I take this opportunity of acknowledging the many valuable hints and most timely information which I have received from its teachings. Let me say that any paper which I have had the honor to read before you has amply repaid me for the trouble taken in its preparation; for it is a fact that the information that one acquires while looking up the necessary authorities, in collecting data, and in recalling one's past experience on the subject on which he is about to treat always proves of great benefit to the preparer of the paper, no matter what may be the result of its delivery on the hearers. I mention this circumstance with the hope that those members who have not yet tried this mode of acquiring information may see fit to do so between now and the date of our next meeting. And I do so not only on your own account, but for the sake of our worthy Secretary here, who has, I find, some little difficulty in causing the members to see this matter through the lights in which I have just presented it to you. In meeting in this little city—little only in comparison with those cities in which we have been accustomed heretofore to hold our conventions—we have inaugurated, as it were, a new departure. For here there are neither retort nor meter factories, and these kind friends of ours who in the past have almost felt in duty bound to take us in and provide for us will not have that opportunity this year. Still, if we feel like meeting around the friendly board, after the business of our sessions is announced as closed, we will have the privilege of being our own entertainers—a privilege which I trust from this date we will ever exercise.

It is my sad duty to announce to you that death—that grim reaper—has again been amongst us during the past year. His unerring scythe has cut out from our midst those with whom we felt it hard to part. Our old friend, Mr. Alfred Odiorne, of Springfield, Ills., has gone to his rest. I need not speak of his faithfulness to this Association; all who knew him respected him.

Mr. T. E. Scobey, of Cincinnati, Ohio, who was with us at our last meeting, so full of life and spirit, has also joined the silent majority. I had not the pleasure of knowing personally our other departed member, Mr. Jos. M. McLean, of Washington Court House, Ohio; but I trust a committee will be appointed to prepare suitable resolutions in memory of our deceased brethren.

To come back to living issues needs but a single step; and turning aside from that which gives us woe, let me say that amidst the general depression of business our industry is in a fairly prosperous condition. This would indicate that the people have come to the point where they look upon gas as a necessity; and with the general and unsolicited decrease in prices, they also appear to have decided, as a rule, that they are only paying for value received. If this were not so—with the powerful competitors, cheap oil on one side, and the electric light on the other—our business would not be an exception to the universal cry of hard times. The price of gas has a steady downward tendency in all localities, and the holders of gas stocks deserve credit for being so willing to receive smaller returns upon their investments, and thus share with the general public the burden of depressed commercial conditions.

Our residuals, in many cases, have been selling below their actual value. Tar has been used as fuel, and coke is almost a drug upon the market. No doubt the wonderful supply of natural gas has much to do with this state of things. Coal miners, finding their old avenues of consumption shut off, have been obliged to find new outlets; and the result has been, to those living within the reach of the influence of the new conditions, an abundant supply of cheap fuel. We have lately converted several thousand bushels of coke into gas, and will continue to do so, if the price of that residual remains at a point where it is profitable to dispose of it in such way. A ton of coke will produce from 36,000 to 40,000 cubic feet of gas. I am surprised that those in charge of some of the gas plants in the large cities, who are kind enough to supply Indianapolis with their surplus coke, do not erect a water gas apparatus, and convert that surplus into gas; surely, if we can do it profitably they can also.

I would suggest to every gas company, whose managers find difficulty in disposing of their coke at a fair price, to erect a water gas apparatus as an auxiliary for the purpose indicated. Ten per cent. of water gas will add about three per cent. of carbonic oxide to the coal gas, making in all, say, seven per cent.—not sufficient to make the gas product especially dangerous. This, I think, would be a better plan for disposing of our surplus coke than to send it on to a neighboring city. At any rate, let your own people, or those from whom you derive your revenue, have the benefit of cheap fuel.

I cannot recall anything new or striking, either in the manufacture or distribution of our product, which has made its appearance this year; except it be that a number of gas companies are supplying the electric light. If people demand a light of high intensity, which I believe to be both wasteful and extravagant, then I see no good reason why the gas companies are not the proper parties to furnish it. They have already the right of way; they understand the wants of the consumer; and there is always more or less waste fuel in the works which can be used to advantage under the boilers.

Some engineers have come to the conclusion that there is a very decided limit to the economy of running high heats, with a view of securing, by any ordinary means, a large yield per retort. It is a question still unsettled just where this limit is—where we can extract all the gas from the coal in a given time, and yet not destroy these light naphthas on which the illuminating power depends. For, surely, in these days, when a light of high intensity is demanded, it is a wrong policy for the sake of a doubtful yield of a few feet more per ton to send out a poor, thin gas. I am glad to observe that one of our members, who has had considerable experience in running high heats, will give us his views on this important subject.

Another unsettled question, to which our attention will be drawn by Prof. Douglas, is that of condensation. I am putting up, at our Indianapolis works, an old-fashioned, atmospheric pipe condenser, believing that to be still the best form. I would not have a multitubular condenser in the works; on the other hand, some of you would not have my old pipe condenser in your plants. Some of us think the gas ought to be cooled slowly; others, again, think that the quicker this operation is accomplished the better. Here is great diversity of opinion as to the mode of condensation. Another question is, how far should it be carried? Is it necessary that the gas should be brought to the temperature of the atmosphere of the room before it enters the purifiers? No doubt the learned Professor will have something interesting, if not decisive, to say on this subject.

I have sometimes thought that we, as gas managers, have of late bestowed more attention on how to promote day consumption than we have on how to promote night consumption. After all, gentlemen, it is on gas for lighting purposes to which we have to look for our revenue. This is the field where we ought to put our surplus energies. Gas fitting, burners, and ventilation ought to receive more attention from us. Unfortunately for many of us, we have lost control over this last-named part of our business. I have no hesitation in saying that we could increase our consumption from 20 to 30 per cent. if we had the gas fitting in our own hands. There are hundreds of would-be consumers in all our cities, living on our lines of mains, who are debarred the use of gas because of the excessive cost of fitting the houses. It would pay every company well to put pipe into such houses at, or even below, cost.

The subject of ventilation in connection with gas fitting and gas lighting is, I consider, a most important one. How often do we hear the complaint that the heat from the gas produces headache; that it is very unpleasant in summer to use gas; and that the strong point in favor of the electric light is that it does not produce heat or vitiate the air of the room. These statements are, no doubt, true; but with some little attention bestowed on the ventilation of the house they would, as far as regards gas, cease to be true. On the contrary, if means were provided to remove the products of combustion from the apartment, the gas burner then becomes a decided benefit; for the very moment it is lighted it puts in circulation a healthy current of fresh air.

And more than this, it has latterly been demonstrated, by actual experiment, that nothing else is so effectual in destroying germ organisms or bacteria in a living room as the naked flame of a gas burner. From an article which appeared in the 23d of February issue of the English *Journal of Gas Lighting*, by Mr. W. Gadd, C.E., and which I commend to your careful perusal, we learn some interesting facts concerning bacteria and how these germs are affected by the gas light. You may also learn that the electric light does not deserve the credit which has hitherto been given it on account of its supposed non-liability to vitiate the air. That, in fact, the air in those theaters where it is used remains stagnate and unwholesome; and sanitary officials are urging the necessity of burning gas in large assembly halls, if only for the purpose of drawing in a constant supply of fresh air. Now, when we think for a moment of the extremely dangerous character of these germ organisms, and see how contagious diseases are propagated by them, and how the flame of a gas burner plays such an important part in their destruction, then this subject of ventilation assumes great importance. I hope to see the day when a gas fitter in piping a house will be required to place alongside of the gas pipes ventilation tubes to conduct the products of combustion to the nearest flue, or to the open air. Our retort makers could easily make these tubes of any size or shape desired—for I need scarcely say that metal tubes will not answer the purpose. I feel again like uttering the just complaint that architects do not give this matter the attention it demands. But a higher civilization, and a consequent closer intimacy with the laws of health, will demand it from them in due time.

Natural gas is occupying a large share of public attention. Companies are being formed, and gas wells are being driven everywhere to tap the valuable product of nature's laboratory. Archæologists tell us of an age of stone, of the bronze age, and of the iron age; and future historians will no doubt designate this epoch as the gas age. The daily consumption is counted in millions of cubic feet, and the daily waste borders on the astounding. We hear of it being found in the most unexpected localities; and, indeed, the question really appears to be, "Where is it not to be found?" Another absorbing question—the one as to its permanency—is still unsolved. If this assembly were composed of others than practical gas men, who are supposed to have no imagination, I should like to take you on an exploring expedition through the vast underground gas works. I am sure we are all curious to know how the gas is made—whether from oil or from coal, or from both. What kind of heats are kept up? If they are on the regenerative principle or on the old style? How is the gas purified? And what is the storage capacity? The size and extent of the leading main would be of great interest; as would also be a knowledge of how the works are controlled, and by whom.

"But here my muse her wing maun cower;
Sic flights are far beyond her power."

Indeed, to do full justice to such a theme would require the pen of that witty Frenchman, Jules Verne; or perhaps a second Dante would be required to penetrate the gloomy labyrinth and disclose the wonderful secrets of this vast, ghostly storehouse. Now when we remember that the words ghost and gas mean the same thing, you will see I have not departed so very far from my subject. I have heard it remarked that the manufacturers of Pittsburgh, Pa., will never return to the use of coal as fuel. Should the supply of natural gas fail them, they will have artificial gas. I doubt this very much. As far as my present knowledge of gas making goes, I am of the opinion that there will be no alternative for them but to return to the use of coal.

The labor problem, which is now agitating the public mind, must be of great interest to us who are so closely connected with it. The nature of our business, I think more than that of any other industry, requires us to depend largely for our success upon our laboring men; and it would be interesting to inquire how it is that gas works, as a rule, are to a great extent exempt from dissatisfaction and strikes. To my mind the cause of this satisfactory state of things is due to the fact that we are obliged to put in force the principle of co-operation. The men feel that a great responsibility rests upon them; and in my twenty years of experience I have always found them to act up to this responsibility. If this principle of co-operation were greatly extended and adopted—if the men were trusted to share the responsibility, and of course share the profits in the shape of fair living wages—in my opinion this would go a long way toward a happy solution of the labor question.

This address would be still more incomplete if I were to close without an allusion to what is known among us as the burning question, viz., opposition gas companies. This is the dark side to our industry—the uncertain side, which often has the effect of paralyzing our best efforts to cheapen a commodity which has become one of the necessaries of life. I know of no other subject wherein the welfare of the people is more concerned than in that of a change for the better in the law governing the granting of franchises to corporations doing business in cities. There is no other subject in which wise, judicious legislation is so imperatively needed. Look at the late shameful spectacle in New York city, where it would appear that the sale of franchises had become a business—sold to the highest bidder! A spectacle which, in time, or if nothing is done to prevent it, will be enacted in every other city of any size in the country. Surely, it is high time that this enormous and corrupting power be taken out of the hands of irresponsible parties and placed in charge of men of high position and responsibility, who will bring to bear on all questions affecting the rights and duties of corporations a calm, unbiased, judicious scrutiny.

At present the people listen to the siren cry of "no monopoly." Even municipal authorities have been known to advertise for opposition companies to come and take possession of a field already fully occupied; and scarcely have they and the people recovered from their exulting at the success of their efforts when they find they have two monopolies to deal with instead of one. And thus it goes on. Every effort made in this direction to break up a so-called monopoly only increases it and makes it more powerful. For that truism must ever be remembered, especially in connection with public companies, "Where combination is possible, competition is impossible."

I confess, if nothing is done to change the law for the better in this respect the future before us is a dark one. I have a feeling of despondency when I contemplate it; not on account of the gas interest alone, but on account of the future of our common country, for it appears to me that I can see in the future one gigantic monopoly owning or controlling every gas works in these States. Then opposition will cease; no one will dare to raise a finger against it. Even this Association will be a thing of the past, for monopoly always kills individual effort.

It may be that I am looking only on the dark side. I hope so. Some light is breaking. A commission (it may be an imperfect one) has been appointed in that mother of States, Massachusetts. Let us hope that her children will not only follow her example but improve upon it.

This Association appointed a committee last year to investigate this grave and important subject. I trust they may be able to suggest a remedy. We will look forward to their report with deep interest. If the English method of dealing with gas companies could be transplanted to this country, it would, I am sure, prove satisfactory to all. They have passed through this trouble and found a remedy. It would only be but the part of wisdom in us as a people to profit by their experience.

General Hickenlooper, in his admirable address before the last meeting of the Ohio Gas Association, advocates the passage of a law based much on the English method, which, if adopted by our State legislators, would be a satisfactory solution o this perplexing question.

Let each one of us, in his sphere, do what he can to shape wise legislation in this direction, not only that our rights and duties as gas managers may

be secured on a firm and lasting basis, but that also the rights of the people, which they are now so ready to barter away, may be secured to them and to those that will come after us.

I thank you again, gentlemen, for the honor you have done me in putting me in this presidential position, and I know I will have your kindly forbearance in the discharge of duties which are somewhat new to me.

[The delivery of the inaugural was interrupted frequently by hearty applause, and when the reading had terminated, on motion of Mr. McMillin, the address was referred to a committee of three, with instructions to report back on the matters contained therein at a future hour of the present sessions. The committee, as named, consisted of Prof. S. H. Douglas, and Messrs. F. A. Cosgrove and H. A. Pratt.]

Appointment of Committees.

The following routine committees were appointed:

Committee on Membership Applications.—Messrs. L. K. Scofield, W. A. Agard, and C. Collins.

Committee on Memorials.—Messrs. J. B. Howard, G. A. Hyde, and C. M. Keller.

Committee on Place of Next Meeting.—Messrs. G. G. Ramsdell, F. Beck, and B. E. Chollar.

Committee on Nomination of Officers.—Messrs. T. G. Lansden, J. B. Howard, E. J. King, Wm. Wallace, and Thos. Smith.

The Chairman then named Mr. J. B. Howard a committee of one to introduce to the convention those of the fraternity (connected with other associations) who had visited Columbus at the invitation of the Western Association. Mr. Howard, in a few well-selected words, formally introduced Messrs. Jno. P. Harbison (President-elect New England Association), of Hartford, Conn.; A. B. Slater, of Providence, R. I.; and J. H. Walker, of Rochester, N. Y. Each of the visitors responded to the introduction in pleasant terms. Mr. E. McMillin now explained that Mr. M. S. Greenough (Past President New England Association), of Boston, Mass.; Col. W. A. Stedman (Past-President American Association), of Newport, R. I.; Mr. E. Vanderpool (Past-President American Association), of Newark, N. J., and Capt. W. H. White (ex-Secretary American Association), of New York city, had all expected and promised to be present at the Columbus sessions, but had been unavoidably detained, much to the regret of all concerned. Mr. McMillin further stated that Mr. Austin C. Wood (President-elect of the American Association), of Syracuse, N. Y., would be at the Neil House at a later hour of the day.

Election of New Members.

The Committee on Membership reported favorably upon the following applicants:

Babcock, H. C., St. Louis, Mo.	Cornell, A. B., Youngstown, O.
Cowdery, J. W., Lancaster, O.	Graeff, G. W., Phila., Pa.
Harper, H. D., Chicago, Ills.	Hart, M. S., Las Vegas, N. Mexico.
McGuinness, J. W., Columbus, O.	Murdock, J. W., Huntsville, Ala.
Sisson, F. N., Albany, N. Y.	Schuster, Paul F., Rockford, Ills.
Watt, Anthony, Connellsville, Ind.	Walbridge, H. S., Toledo, O.
Wolfe, L. J., Chicago, Ills.	

The President ordered the Secretary to cast the ballot of the Association in favor of the aspirants; and his report that they were duly elected was endorsed by the members.

Reports of Standing Committees.

The President called for a report from the Committee on Gas Commissions. In response to the call Mr. G. G. Ramsdell, for Committee, reported that the findings of the Committee on the subject were ready for presentation. Mr. Lansden hoped, in consideration of the importance of the question, that its presentation be deferred until those members who had not yet reached Columbus, but who, nevertheless, were on their way there, had arrived. Mr. King suggested that 11 o'clock, A.M., of following day be named as the hour for the presentation and discussion of the report. It could be made a special order, and receive due and thorough discussion. Agreed to.

Amending the By-Laws.

Mr. E. McMillin asked that the amendment proposed by him last year, looking to an alteration in the by-laws in regard to the mode of the election of "Associate" and "Honorary" members, be now considered. Agreed to. Secretary Littleton thereupon read the following extract from minutes of the 1885 meeting of the Association:

"Mr. E. McMillin called attention to the fact that Article II. of the by-laws read as follows:

"'Any person directly or indirectly connected with the management of gas works or gas machinery, or who may be skilled therein, shall be eligible for election as an honorary member of this Association.'

"He (Mr. McMillin) then offered the following as an amendment thereto:

"'*Resolved*, That Article II. of the by-laws be amended by striking out the word *honorary* in the fourth line and inserting in lieu thereof the word *associate*.'"

On motion of Mr. McMillin the amendment was unanimously adopted.

Election of Honorary Members.

Mr. Howard—I would like to ask who now are the honorary members of this Association. Having made this change in our by-laws, have we at present any honorary members?

The Secretary—We have but one honorary member—Mr. Jos. R. Thomas, of New York city.

Mr. Howard—Mr. Thomas may not like the idea of remaining in such solitary grandeur. I think we have two visitors at present with us who are well deserving of a place upon our roll as honorary members. They have been with us several times, and have always manifested great interest in our Association. If it be in order, I move that the names of Messrs. J. P. Harbison, of Hartford, Conn., and A. B. Slater, of Providence, R. I., be placed upon the roll of this Association as honorary members.

The President—I have very much pleasure in putting this motion. They are gentlemen well worthy the position of honorary members; and we feel it an honor to us to receive them as such.

The motion was unanimously adopted.

In reply Mr. Harbison said:—Mr. President and gentlemen of the Association, I am sorry that Mr. Slater left the room a moment ago, because he is the one who could most eloquently thank you for your action in electing us to honorary membership in your Association; but, in his absence, I will ask you to accept a word from me in behalf of us both. I know that he will feel, as I do, highly honored in having been unanimously elected to this honorable position. It is even a privilege to be an active member of an Association like this; and I feel it to be a still greater privilege to be made an honorary member. This is the third time it has been my good fortune to meet with you in your annual convention. I felt, when returning home from the 1884 meeting that I must come again; and I also felt (only more strongly) on returning home from the 1885 meeting that I should thereafter have a special errand from home in the month of May, year by year. In accordance therewith my plans during the year have been made with reference to coming West in the middle of May, for the purpose of attending your meeting. I feel that it does me good to get away from my cares at home, and especially when I leave for the purpose of attending the gatherings of this Western Association. I desire to thank you heartily for your courtesy. The only regret I have is that I have not the privilege of taking you all by the hand and welcoming you to my own place. I have had lots of promises of visits from you, and have tried to keep up my courage on the promises. Promises are good when well made; but they are very much better when well kept. Of course, I know how difficult it is for a gas man to get away from home, particularly if he has the entire burden of responsibility resting upon him. I desire to thank you again, Mr. President and gentlemen, for the honor conferred upon me, and I know, in consequence of your exceeding courtesy, that Brother Slater will feel (as I do) at least an inch taller than he did. I trust that the Association will live and prosper for many years to come, and believe that it will not be—despite the possibility intimated by the President in his address—"wiped out." I do not believe in any such possibility. I do not believe that the Western Association, or any other Association of Gas Engineers, can be wiped out by any monopoly, or by any combination. We have the people on our side; and the people cannot be put down by any monopoly. Do not let the impression get out that we have any sort of fear as to the action of any combination. Let our light always shine in the front rank.

A recess was here ordered.

First Day—Afternoon Session—May 12.

The Association reassembled at 2 P.M. Following the call to order Mr. Howard said he took great pleasure in introducing to the Association Mr. A. C. Wood, President-elect of the American Gas Light Association.

The President—We are much gratified, Mr. Wood, to welcome you to this gathering. Let me ask you to consider yourself as "one of us."

Mr. Wood replied in the following terms: Mr. President and Gentlemen of the Western Gas Association—I thank you for the cordial welcome you have given me as President of the American Gas Light Association. Allow me to congratulate you upon the eminent success of your organization, and also to say that I take great personal pleasure in being able to be with you at this your ninth annual meeting. Being one of the charter members of the American Gas Light Association, as well as of the Central New York Gas Engineers Association, I have always found pleasure and profit in attending the meetings of these and kindred Associations. The information to be derived from the papers read, as well as from the discussions that follow, and, more than all, from information gained in social intercourse with each other, when operations in detail are talked over and results compared—all of these have been of inestimable benefit to the gas companies of the country,

Not only to the gas companies, but also to the communities they serve; and I verily believe that if it had not been for these organizations the gas companies of this country would not to-day be in condition to compete with their oily competitor, or that more expensive illuminant, electric light. The facts brought out at the meetings of these Associations have created a friendly rivalry among their members, until to-day we are obtaining results that a few years ago were deemed impossible. Previous to the meeting of the American Gas Light Association held at Cleveland, Ohio, May 13, 1874—and Mr. Thomas will bear me out in the statement—the average yearly production of the gas works of the country did not exceed 4 cubic feet of 14-candle gas from one pound of coal carbonized. At that meeting, in the papers read and statements made in the discussions that followed, and also in personal comparisons, it was found that there were many there who had obtained results far exceeding those which it was supposed had before been accomplished. That was an important epoch in the history of gas making in the United States, for immediately began new efforts to promote the business, resulting in increased yields and richer gas, produced at a reduced cost. This enabled the companies to sell gas at less than previous rates, largely promoted its sales, and enabled them to successfully compete with other means of lighting. Since then our communities have been served with better gas at a reduced cost, and the manager of the gas works has had the satisfaction of benefiting his fellow man (for which he gets no credit), and also of benefiting his company in increased sales, which latter, even with a reduced price for his gas, enables him to still pay dividends to his stockholders. Thanking you again for your kindly reception, I will not detain your business by further remarks.

This brought the regular business to the reading of papers.

[To be continued.]

[Official Report.—Continued from page 289.]

Second Annual Meeting of the Ohio Gas Light Association.

Held at the Arcade Hotel, Springfield, Ohio, Mar. 17 and 18, 1886.

Second Day—Morning Session—Tuesday, Mar. 18.

The President announced that Mr. Eugene Printz, of Zanesville, Ohio, would now read his paper descriptive of

AN EXPERIENCE WITH AIR IN GAS MAINS.

Mr. President and Gentlemen:—It is more than likely that you will consider that the above subject is a strange one upon which to found and prepare a paper; but as it is proper and right for us to detail our experiences gained when working under difficulties—no matter whether such varying experiences resulted in success or failure—I venture to submit the following, premising it with the suggestion that one often learns as much from a failure as he does from a victory.

In regard to my Zanesville experience with air in gas mains, and which happening I propose to recount as it actually occurred at the gas works, I believe you will agree with me as to its strangeness, and also concur in the idea that a reasonable explanation of the affair will be difficult to offer. At the particular time of the occurrence our city was in a decidedly excited state over the antics indulged in by the Muskingum river. Its waters had overflowed the channel banks, and the flood covered the larger portion of three wards of the city.

As a preliminary explanation, let me say that we have three gasholders, their outlet pipes connecting into one main through which the gas passes to the lower chamber of an old-style governor. From thence, as the gas passes out from any one of the holders, it enters, through a plain, ordinary cone valve, into the upper chamber of the governor, and then out into the city through three outlets—one 8-inch and two 6-inch mains—all leading south from the gas works, and underneath the one street, to the points of largest consumption. The first (or 8-inch) pipe lies on east side of street, and is tapped with but one service (the latter is located immediately opposite the works, or say about 50 feet distant from the governor), and at a length of 1,200 feet from the works it connects with other radiating lines which serve to regulate the pressure.

The second (a 6-inch) pipe runs along the west side of street, and stretches out for 3,000 feet untapped by services, where it branches off into two sections—one being intended to convey gas to the Seventh and Eighth Wards, while the other runs off to the Ninth Ward. In fact, this west line was put down with the express intention of furnishing a gas supply to the three wards named, these latter being located on the opposite side of the river from that taken up by the city proper.

The third (also a 6-inch) pipe, or the one which furnished us with the "air experience," was the first conduit put down in connection with the plant. It has branches and services on all the cross streets. The first take-off is an inch service, intended to feed the lights in the retort house, tapped into the main at a distance of 90 feet from the governor; the next outlet, 30 feet further on, is a 4-inch pipe which conveys the gas supply to the northeastern section of the city. The third tapping point is about three feet away from the last-mentioned outlet, and consists of a ¾-inch service (the opening at top of post is one-half inch) leading to a lamp-post. I mention this post service with such particularity because I shall have occasion to recall your attention to it later on. Now for the "experience."

At 4 o'clock on a certain morning word came to me from the works that the lights in the retort house refused to burn, and that the street lights were very blue. Starting at once to the scene of trouble, I perceived the reports to be grounded on fact. My first thought was that the man in charge of the exhauster engine had allowed it to drive so rapidly that air had been drawn into the mains from the retorts, and I directed that the gas (made on the previous day) stored in another holder be turned on. This was done, but no relief resulted; in fact, all the street lights fed from the particular 6-inch main and branches leading to or traversing the lower levels of the city became extinguished. The lights fed from the branches to the higher levels gave no sign of weakness. With the approach of daylight we bestirred ourselves to locate the seat of imperfection. Then, taking it for granted that recovery to normal condition would follow the experiment, men were sent out to remove the lamp cocks from the posts located in the affected district, in the belief that the air diluent would be freed from the gas. The remainder of the day was allotted to the practice; but even at the termination of that time we were obliged to keep the half-inch pipe on the first lamp-post spoken of still unsealed. If that opening were closed for a period of ten minutes the lights in retort house would betray symptoms of weakness.

After lighting-up time, and when the heavy consumption was on, and believing the trouble was certainly corrected, in that the air was supposed to have been exhausted from the pipes, we replaced the key and burner to first lamp post and lighted the gas. It remained alight only a short while, when the cry arose, "The trouble has reappeared." The retort house lights were extinguished, as was also the light in the test lamp post, while the jet in the second post (situated some 300 feet further down the street) was becoming very weak. On reopening the lamp key at the first post the gas immediately brightened up, and continued so until 11 P.M., at which hour we attempted to reduce the pressure at the governor. The air then made its presence known at the photometer—the latter instrument is attached, by means of a short length of pipe, to the upper or outlet section of governor. We at once increased to our maximum pressure, and were not again troubled at the photometer. The pipe in first lamp post was kept open for the remainder of the night, and several trials were made to determine whether it would be safe to replace the burner and key. These trials met with failure until 9 o'clock on following morning, at which hour the burner was readjusted, and the light showed good and strong. When we had about concluded that the vexation was ended, and that the normal condition had been attained, our congratulations received another check. At one o'clock, P.M., the test lights began to waver, and our signal lamp post service was once more unclosed. At 4 P.M. we readjusted it, and since that time everything has worked smoothly. I might add that prior to the time above noted we had had no like experience.

Now, the question is, What caused the trouble? Why, as it were, did the gas stratify in such peculiar manner, or so that the relief afforded by the uncapping of a particular post would permit the gas current to pass on, seemingly uncontaminated, to other posts and to the consumers? What likely circumstance could produce a result of that nature? I am satisfied that the gas in the holders, and even up to the situation of the governor, was as it should be; yet at a distance of 90 feet away, the current passing out through a single outlet, and at that outlet only, would show an admixture of air, while in a second main, fed from the same source, and tapped by a service but 50 feet distant from the governor, the current showed no contamination whatever at any time of the affair.

It has been suggested to me, by one of the members of this Association, that probably some evil-minded person had pumped air into the affected main. Of course, that could be done; but I am quite sure that it was not. What could be the animus for so doing? Indeed, when we consider the hour—four o'clock in the morning—at which the disturbance originally manifested itself, and keeping in mind that the irregular conditions prevailed for 36 hours, we must concede the "pumping-in" reason hardly applies.

Please remember I stated in the beginning that our river was very much swollen. Some three or four hours prior to the development of our bother, an embankment on the Eighth Ward side of the stream had given way. In consequence of the rupture the waters rushed with great violence down the adjacent street—the fall being 12 feet in 200 feet—destroyed the roadway, washed off the earth covering our main pipe, and also stripped an inch service pipe which led to a mill building. The service was broken off near the point where it penetrated the mill's foundation wall, and twisted around in the direction taken by the flow of the water current. Now, this service was

fractured at about the same time when the test lights in retort house showed dim; and within an hour after the embankment was repaired (this was completed between three and four o'clock of the second day), thus shutting off the water from its rapid flight down the street, and from sweeping over the open end of our fractured service pipe, the air admixture ceased to be noticed. I should say here that this service and place of washout are fully three-quarters of a mile away from the gas works; also that the lights on a bridge spanning the river, and landing within 200 feet of the point of location of the broken service pipe, never failed in their lighting duty during the troublesome period.

The theory which I entertain, and which I am free to confess does not appear very plausible, is this: The water running swiftly by the fractured service, the latter lying in and parallel with the stream, created a draft or suction sufficient to so reduce the gas pressure at some point in the mains as to allow the air to enter. The air then, of its own gravity, would seek the lower levels, and was on its course when we arrested it, by turning on the full pressure and removing the lamp-key, thus forcing it to pass from the main at the stated point. Otherwise it would continue on down the conduit, or, if the pressure were removed, would work its way into the holder.

You will say that air could not under any possibility enter the pipes when the pressure on them was sufficient to allow or permit of the consumption of gas. Be that as it may, this fact remains. The fracture of the service pipe and the original appearance of the air diluent were manifested at about one and the same time; further, the repairing of the embankment and the cessation of the air trouble occurred in unison. Were these occurrences mere coincidences; or will you sustain me in the theory proposed? In its support I might quote some remarks made by a speaker during one of the sessions of the last convention of the American Gas Light Association.* During a discussion as to the probable cause of the stopping up of gas burners fed from the dead-end of a gas main, Mr. Littlehales "Thought the stoppage was caused by the excess of air in the gas producing a hotter flame at the burner tip," and stated also that, in the case of dead-ends, "when the pressure is rather low, slight leaks, either in the pipe itself, or in the joints, *will* permit of a harmful percentage of air to work in."

Now, my idea is that suction on the open service pipe did produce a pressure low enough to permit the air to penetrate through some opening, and in such quantity as to cause the trouble above related.

Discussion.

Mr. McMillin—I think Mr. Printz has given us a hard nut to crack. It is the most remarkable experience I have ever listened to, and one which will perplex us to account for, even were we much more familiar with the surrounding circumstances than we can claim to be. I would like to ask if the spot where the fractured service existed was about the lowest point on that particular line of main.

Mr. Printz—It was.

Mr. McMillin—Did any feeders lead off from that main which could be traced to an ultimate point of much higher elevation?

Mr. Printz—None that radiated directly from it; although, come to think, one feeder might be traced to an elevation of 160 feet above the point where fracture happened.

Mr. McMillin—I think your theory is right. Probably the current of water is not responsible for anything other than the fracture. The difference in specific gravity of the atmosphere and the gas accounts for the introduction of the air. Probably, no matter what may have been the case subsequently, you did not at the time have a greater pressure on the mains than 16-tenths, unless the elevation was greater than 160 feet. I noticed that when the pressure was reduced your trouble increased—which would surely be the case. If that hill was 160 feet high, and you did not have over 15-tenths pressure, no gas would come down that pipe if it were open; but, on the contrary, the air would go up. I had an experience somewhat similar in a works "out West." The holder outlet got plugged up. We tried all the usual remedies for removing naphthaline, but they were not efficacious. We afterward ascertained that when the inlet to holder was put down it had been covered over with an old corn sack, and had been forgotten when the holder was completed. The builder thought the rag would rot, and so concluded no harm would ensue. After a time we could pass no gas through it, and during the time taken up in fishing out the obstruction and clearing the main we were obliged to supply the town with gas right from the retorts. The town was located on a hill, and the gas works were in a hollow. In the meantime we had to burn candles in the retort house and in the office, while the people uptown were fairly well supplied with gas.

Mr. J. M. Bate—I understood Mr. Printz to say the service pipe was in the water, and that it was the violent rush of the current over the open end of the service pipe which made it act as a sort of pump. Again, he speaks of drawing air into the pipe, not through that broken service, but through another opening somewhere else at a higher level.

Mr. McMillin—There was no second opening.

Mr. J. M. Bate—I would like to ask Mr. Printz if he discovered any special leak along that line of main which would account for the air drawn in.

Mr. Printz—We did not; neither did we have any complaint from consumers on a higher level as to gas leakage.

The President—Was the open service always under water? Are you satisfied that the receding water did not leave it high and dry?

Mr. Printz—As soon as the water receded our trouble ceased.

Mr. McMillin—The reasoning of Mr. Printz is good; for if the service were under water, and parallel or nearly so with the current, suction would exist.

Mr. Ross—I would like to ask Mr. Printz if it was actually air that was blowing through the open lamp service; or did the gas simply fail to burn?

Mr. Printz—I will answer by saying that when we removed this lamp cock the pressure appeared to be about as strong as if it were gas that was issuing. However, there was nothing which would ignite. While I did not make any analysis, I took it for granted that it was air which made its appearance; and I think so yet.

On motion of Mr. Bate, the thanks of the Association were voted to Mr. Printz for his paper.

The President—The next paper is handed in by Mr. J. Gwynn, of Fostoria, and was written in response to the Secretary's query—

WHAT IS THE LOSS IN ILLUMINATING POWER OF COAL GAS BY THE EXCLUSIVE USE OF OXIDE OF IRON FOR PURIFICATION?

Mr. Gwynn read as follows:

Mr. President and Gentlemen of the Association:—It is in response to the request of the Secretary that I have prepared a paper on the above-named subject. I have endeavored to do so with care and accuracy, because I know that the subject is one of great importance to all gas managers, as well as to the manufacturers of the material. Oxide of iron is employed by upward of 300 gas companies in the United States; and out of about 70 coal gas companies in the State of Ohio 20 use oxide of iron exclusively, 8 use iron and lime, while the remaining 42, at least so far as I can learn, still use lime as a purifying agent.

In order to do justice to the subject I instituted and carried out a series of five tests; and the results of same are appended.

Test No. 1.—Made on Connelly's iron sponge. Sort of coal used, Youghiogheny.

Coal carbonized ..... 750 lbs.
Time spent in carbonizing..... 4½ hours.
Yield per pound..... 4.756 cu. ft.
Total gas made..... 3,567 cu. ft.

Rate of Gas Production.	Candle Power.	Rate of Gas Production.	Candle Power.
½ hour, 622 cu. ft.....	20.0	3 hours, 325 cu. ft.....	16.0
1 " 560 "	19.0	3½ " 310 "	15.0
1½ hours, 522 "	18.0	4 " 205 "	14.5
2 " 488 "	17.0	4½ " 130 "	14.0
2½ " 405 "	16.5	Total c. p., 150; average, 16.66.	

Test No. 2.—Made on Connelly's iron sponge with lime. Sort of coal used, Youghiogheny.

Coal carbonized ..... 750 lbs.
Time spent in carbonizing..... 4½ hours.
Yield per pound ..... 4.61 cu. ft.
Total gas made..... 3,456 cu. ft.

Rate of Gas Production.	Candle Power.	Rate of Gas Production.	Candle Power.
½ hour, 561 cu. ft.....	21.0	3 hours, 350 cu. ft.....	17.0
1 " 490 "	20.0	3½ " 340 "	16.5
1½ hours, 418 "	19.0	4 " 285 "	15.5
2 " 387 "	18.0	4½ " 247 "	14.5
2½ " 378 "	17.5	Total c. p., 159; average, 17.66.	

Test No. 3.—Ferric oxide and lime. Sort of coal used, Youghiogheny.

Coal carbonized ..... 750 lbs.
Time spent in carbonizing..... 4½ hours.
Yield per pound..... 4.785 cu. ft.
Total gas made..... 3,589 cu. ft.

Rate of Gas Production.	Candle Power.	Rate of Gas Production.	Candle Power.
½ hour, 614 cu. ft.....	20.0	3 hours, 390 cu. ft.....	16.0
1 " 505 "	19.0	3½ " 320 "	15.0
1½ hours, 480 "	18.0	4 " 240 "	14.5
2 " 427 "	17.0	4½ " 180 "	14.0
2½ " 433 "	16.5	Total c. p., 150; average, 16.66.	

*See JOURNAL, Feb. 2, 1886, p. 69.

Test No. 4.—Ferric oxide. Sort of coal used, Youghiogheny.

Coal carbonized ..... 750 lbs.
Time spent in carbonizing..... 4½ hours.
Yield per pound ..... 4.857 cu. ft.
Total gas made..... 3,643 cu. ft.

Rate of Gas Production.	Candle Power.	Rate of Gas Production.	Candle Power.
½ hour, 634 cu. ft.....	19.0	3 hours, 450 cu. ft.....	15.0
1 " 504 "	19.0	3½ " 270 "	14.0
1½ hours, 470 "	18.0	4 " 240 "	13.0
2 " 465 "	17.0	4½ " 160 "	13.0
2½ " 455 "	16.0	Total c. p., 144; average, 16.	

Test No. 5.—Hydrate of lime. Sort of coal used, Youghiogheny.

Coal carbonized ..... 750 lbs.
Time spent in carbonizing..... 4½ hours.
Yield per pound..... 4.928 cu. ft.
Total gas made..... 3,696 cu. ft.

Rate of Gas Production.	Candle Power.	Rate of Gas Production.	Candle Power.
½ hour, 686 cu. ft.....	21.0	3 hours, 350 cu. ft.....	17.0
1 " 515 "	20.0	3½ " 320 "	16.0
1½ hours, 525 "	19.0	4 " 220 "	15.0
2 " 480 "	19.0	4½ " 160 "	14.0
2½ " 440 "	18.0	Total c. p., 159; average, 17.66.	

In making the above tests the usual trials for impurities were made each thirty minutes, with the following results:

Test No. 1 showed slight trace of ammonia and sulphuretted hydrogen. Test No. 2 showed slight trace of ammonia. Test No. 3 showed slight trace of ammonia, and also of sulphuretted hydrogen. Test No. 4 showed a slight trace of ammonia, and also of carbonic acid. Test No. 5 showed a slight trace of ammonia.

In referring to tests Nos. 2 and 5, it is clearly shown that oxide of iron and lime, or lime alone, for purification, in my judgment, is superior to oxide of iron alone; further, test No 1 shows 16.66 candle power, while tests Nos. 2 and 5 show 17.66 candle power, working with oxide of iron and lime, or lime alone—equal to a gain of one candle power. Then the impurities shown in tests Nos. 1 and 4 did not appear in tests Nos. 2 and 5.

In conclusion, I will say that the average candle power shown in the above five tests was taken after the gas had passed the station meter and the inlet pipe; and that the candle power shown on the outlet pipe was substantially the same. Thanking you, gentlemen, for your attention, I will close.

Discussion.

Mr. J. M. Bate—I would like to ask Mr. Gwynn as to the sort of photometer used?

Mr. Gwynn—I used a Jones' jet.

Mr. J. M. Bate—I would like to ask whether that instrument may be depended upon in making tests? Can we accept it as a reliable gauge, especially when we get up to 19 or 20-candle power?

Mr. Gwynn—I may say that a Toledo gas man, who has used the Jones jet for a number of years, says that he tested the instrument in comparison with the bar photometer, and found the former near enough to correctness for all practical purposes. If you desire precise accuracy as to the candle power of your gas I presume the bar photometer would have to be called into requisition.

Mr. McMillin—I am much interested in the paper just read. I might take issue with some of the points noted—certainly with the one that attributes any responsibility to the oxide of iron, *per se*, for the presence of ammonia. It might possibly do to charge it with the sulphuretted hydrogen; but I know that if a proper quantity of clean or live oxide of iron is employed in the work the sulphuretted hydrogen will be arrested; certainly the oxide is in no way responsible for the traces of ammonia observed. The tests of illuminating power are comparative, and are valuable for comparison one with another; still they may not be conclusive in the premises, for no statement is afforded as to the specific gravity of the gases which were examined on the five occasions. The gas which contained the carbonic acid, on account of its greater specific gravity, would not pass through the photometer at as great a rate of speed as would the sort free from that impurity. In the one instance you burn one volume of gas, and in the other case you consume a different volume. We use the Jones' photometer, and look at it every hour or two during the day. It is very convenient to watch it for an indication of an extraordinary change in the gas; but if I desire to have it so that I can rely upon it the governor must be taken off and cleaned, and new glycerine put in, and it must be regulated by the bar photometer about once a month. Then it will give a fairly approximate test. If the specific gravities of the gases were equal the tests might be considered as close enough to the truth; but as the gravities must have differed, you might in one instance be testing nine feet of gas as against ten in the other.

Mr. Gwynn—The item shows (as regards the test on Connelly's iron sponge) no carbonic acid. Gas treated with Connelly's sponge only gives 16.66 candles; when lime is employed as an assistant to the same sponge, the light is returned at 17.66 candles, or equal to that produced as a result of the exclusive use of hydrate of lime. The ammonia was but a mere trace. About the tests made by the Jones' photometer, I may say that it was thoroughly clean and in good working order, and I fail to see why the tests will not afford a fair basis of comparison. The carbonic acid shown was only the merest trace. I may say that the sponge used was new, being purchased from the Messrs. Connelly only a short time since. There were 75 bushels in three boxes through which the gas was passed, and not over 100,000 cubic feet had been filtered through it previous to the making of the tests. Indeed the sponge was not discolored.

Mr. McMillin—Did you say that the sulphuretted hydrogen shown was extremely slight?

Mr. Gwynn—The merest trace. The carbonic acid shown appeared in the gas purified by Prof. Douglas' material.

Mr. McMillin—I am surprised at the statement that the material of Prof. Douglas would show carbonic acid, since he claims all the oxides remove carbonic acid. I believe no one else ever claimed that. The iron sponge which permitted a trace of sulphuretted hydrogen to appear may not have been in duty long enough. The oxides require to be used for some time before they are really good. While I am much interested in such experiments, I think we must not base too much upon them. We must not draw conclusions that would be inimical to any system of purification; because the experimenter may have been making a better grade of gas when he used the oxide of iron than when he was employing lime alone; or, of course, he may have been making worse gas. With one charge you may obtain a 16-candle power gas, while in the very next run you may obtain 17-candle power—following precisely similar custom in both instances; so that unless the gas was taken from the same charge we cannot draw conclusions too closely from the tests.

Mr. Gwynn—I would like to ask Mr. McMillin how it comes that he can make 16-candle gas out of one charge—taking the coal out of the same carload—and 17-candle gas from the other?

Mr. McMillin—Just as you may make 16-candle gas one day and 17 the next.

Mr. Gwynn—Can you give any reason for it?

Mr. McMillin—It will depend upon the manner in which the coal is put into the retorts; upon the quantity of moisture in the coal—there are a thousand things which may modify the results.

Mr. Gwynn—But assuming that the coal is from the same carload?

Mr. McMillin—The manner in which it is thrown into the retorts may make a change. If filled in so as to lie evenly and well spread over, or so that a large portion of it will come in contact with the heat, better results will be secured than would follow if the material were improperly inserted and distributed in the carbonizing vessel.

Mr. Gwynn—During those tests every reasonable precaution was taken. The retort heats were carefully watched, and the system of charging was accurate and uniform. The charges weighed 250 pounds each, and two men were allotted to do the charging.

Mr. McMillin—I think the paper bears evidence of careful work.

Mr. Somerville—To my mind there is no doubt that the use of oxide of iron produces varying effects. Within the last year I have had actual demonstration of the fact. I put in a new set of purifiers, and filled the boxes with sponge, but did not pass the entire make through it—say, two-thirds of the gas product was thus purified. I found that I had to make a three-percent. increase in enriching material in order to keep up to the illuminating power secured when I employed lime alone as the purifying agent. I never could find any trace of carbonic acid when lime was employed. It may be that the oxide of iron throws down some of the illuminants in the gas, for when changing the boxes I perceive naphthaline crystals all through the sponge. These, of course, are illuminants absorbed by the oxide of iron, and I do not remember having seen a similar condition of affairs when using lime. To have any fair value for test purposes the jet photometer must be watched carefully, and compared frequently with the bar photometer.

Mr. Fullagar—We have been using oxide of iron at Cincinnati for about six years; and I find we do not lose much over one-half-candle power in the lighting value of the gas as compared with the results formerly obtained when using lime. There is a vast difference in the temperature of the boxes, when using lime or oxide. I have noticed (as Mr. Somerville has said) that the oxide boxes are permeated with naphthaline crystals; but do not believe such deposits account for the decrease in candle power.

Mr. Ross—I would like to ask Mr. Gwynn if he did not secure his best showing in candle power during first period in the tests, or when his heats were hottest, and when the greatest quantity of gas was coming off from the coal?

Mr. Gwynn—The yield in first half hour when purifying with Connelly's sponge in conjunction with lime, was 561 feet, with an average candle power

of 17.66. On lime alone, as per test No. 5, we turned out 686 cu. ft. in first half hour, and the average illuminating value was 17.66. During the second half hour the yields were closer together.

Mr. Ross—Then there is an advantage in using lime in conjunction with sponge.

Mr. Gwynn—The figures in the paper certainly convey that impression.

Mr. Printz—What proportion of lime was employed with the sponge at the time of employing the mixed purification? Was the temperature of the gas taken at time of making the tests?

Mr. Gwynn—Two boxes were charged with the oxide, and a third one with lime. In other words, one-third lime and two-thirds oxide of iron were the proportions used. The temperature of gas at time of testing for illuminating power was 60°.

On motion of Mr. McMillin, a vote of thanks was passed to Mr. Gwynn.

(To be Continued.)

Some Unexpected Experience with Sulphur.

At the last meeting of the North of England Gas Managers Association Mr. J. Whyte, of Seaham Harbor, read the following paper. We are indebted to the London *Journal* for our report of same:

In coming before this meeting with the following few remarks on some experience we had with sulphur, I do so with considerable diffidence, as I am well aware that many, if not most of you, will think that nothing but sheer carelessness or thoughtlessness could have given us the trouble we had with sulphur in our gas for a few days. But I am not the first who has passed through such an experience; and I have no doubt every one of you either heard of or read the paper by Mr. Macpherson, of Kirkcaldy, on some of the difficulties he had to deal with in regard to sulphur, in January, 1884, at the meeting of the North British Association of Gas Managers, held in Glasgow, in the following July, as reported in the *Journal of Gas Lighting*, for Aug. 19th, 1884, p. 334. Neither do we forget the case of the Newcastle Gas Company, who comparatively recently were convicted for having an undue amount of sulphur. So it occurred to my mind that a few remarks on my experience might not be altogether unprofitable at our present meeting, as what has been may again happen, and perhaps to some other person next time.

On Tuesday, Nov. 17, last year, a quantity of coal arrived in our works from a colliery which has sent me supplies more or less for the past seven years or thereby; and these supplies had uniformly produced fair returns, so much so that I had not had any occasion to make any complaint, at all events. I was told that this coal was coming owing to a breakdown at the colliery then supplying us. The coals arrived about 6:30 P.M., and were emptied immediately, so that part of the coal would be used in charging the retorts at 7 o'clock, after which hour most, if not all, of that coal would be used. About 10:30 I perceived, as it were, a slight smell as of dirty gas, but could not at first allow myself to believe that it was so, as I knew we had changed a purifier on the previous Saturday, and that, under ordinary circumstances, we did not require another turned on before the next Friday or Saturday. But, on testing the gas, the test-paper was very much discolored; so much so that, having a good stock of gas in the holders, we laid off most of the retorts for the night, got all hands at work as soon as we could see, and had another clean purifier turned on at 8:30. As you may be sure, I concluded that either the lime in the previous purifier was not properly prepared, or that something was wrong in the spreading of it; and so I made up my mind to watch it and find out what was wrong when it came to be emptied. I may say that our purifiers are 10 feet square, worked by a center valve, with three on and one off, with four sieves of lime from 4 to 5 inches thick.

We again got all the retorts at work, never once thinking anything further about the matter until about 4:30 P.M., when the same smell again indicated foul gas. The test-paper I had fixed in the morning was quite black, as were also other tests we then made; and again about half the retorts were laid idle. We had another purifier changed as early as possible next morning, and carefully watched the result, as we then took hourly tests; and from the first the test-paper was just what you could see discolored. By 3 P.M. it was very apparent that we were to be in a similar position that night; and so it turned out to be. We then tested to see if the center valve was passing foul gas, as we had noticed a slight settlement in the foundation of the valve a few days previously, whereby one pipe was cracked; and we concluded that something must have given way inside of it that was doing the mischief; but we found we must seek elsewhere for the evil. I then blamed the lime, though this was from the same works we had received it from for a considerable time. The next day (Friday) we changed another purifier, with the same result as before; so that about 5 P.M. the test-paper was again quite dark. By this time we were beginning to be pressed for gas, and everybody and everything was blamed except the right thing.

At last the question arose, Is anything amiss with the coal itself? We gave a casual look, and did not see anything particular. But finding nothing else to account for what was wrong, we turned again to the coal; and, on making a careful search, we found several large "brasses," some of which are now before you. In order to satisfy myself more fully if it was the coal that was at fault, I borrowed from a neighbor some wagon loads of coal from another colliery, and had the retorts charged at 8 P.M. with the new coal. After we put in the 9 o'clock charges the test-paper began to show some slight improvement; and the result was that by 10:30, with 18 out of the 30 retorts working with new coal, we saw quite clearly we were on the right track at last for the evil. We changed the other purifier in the set, and not a trace of sulphur was indicated by the test-paper. I procured a few more wagon loads of coal to serve us until the following Monday, when we again tried the coal in stock, with the result that by the time we had 18 retorts at work the gas again discolored the test-paper.

Having then proved conclusively that it was the coal, I at once complained to the colliery officials, showed them a sample of what we had taken out, and they at once sent three "casters"—men who are trained for the work, and who act as a check on the screenmen, and have nothing else to do but to cast wagons sent there day after day, and weigh very minutely all brasses, stones, etc., keeping a separate account of each—and these men had to turn over every shovelful of coal in the works, cleaning out all obnoxious matter, which was carefully weighed even to ounces. As a further inducement to the screenmen employed at all the collieries to do their duty a very commendable rule has been adopted at some of the best managed and most extensive, by which the manager checks, by means of these casters, the work done, and either awards a premium or imposes a fine, as the case may be. Coal containing a certain percentage of refuse is passed as normally clean, and for which neither a fine is imposed nor a gratuity given; but for every 15 pounds per ton of coal less than this percentage a gratuity is given, and for every 15 pounds per ton in excess of that quantity a fine is inflicted. This rule has been found a very great inducement to the screenmen to do their work thoroughly, so that they may share in the prize held out to them.

As you may be sure, such a state of matters led to a most careful and searching inquiry by and among the colliery officials, one and all of whom seemed in the most profound ignorance of such a thing, and could not give any account of the cause or assign any reason for it, except on the assumption of a "trouble" which they might be coming upon in the mine. What made it all the worse to find the cause of the evil was the fact that it was only a few truck loads that were at fault, and even in them many of the brasses were inside of what looked like pieces of really good coal.

I must ask you to excuse my taking up so much of your time with what many will say is a mere trifle, and ought to have been seen at once. This may be so; but it was not easily done, and my bringing it before you may serve as a warning to other persons, should such an experience fall to their lot. If so, I shall feel that I have not taken up your time and attention in vain.

The President said the paper contained many lessons useful for them all to know.

Mr. Hepworth thought any gentleman who saw the samples of pyrites which Mr. Whyte had produced would come to the conclusion that it would be impossible to make gas which would be free from sulphur while they were in the coal; and if this was going to be the experience of many of them it was time they had an alteration in the law relating to sulphur compounds. After the experience of the Newcastle Gas Company, the Crystal Palace District Gas Company, and Mr. Whyte, they should be able to make out a good case for the relaxation of the powers under the Act.

The President said the paper was not one which could be criticised very much, because it was a statement of facts which had occurred in Mr. Whyte's experience. Perhaps all they could say was that they hoped neither he nor any of them would have any such experience again.

SPECIAL ENGLISH CORRESPONDENCE.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, MAY, 10, 1886.

Exhibitions of Gas Appliances.—Coal Tar as a Fuel.—The Late Lord Redesdale.—The Sulphate of Ammonia Producer's Association.—Street Railways to Gas Works.

Exhibitions of gas appliances are more in vogue than ever this spring. I should think that not less than half a hundred were held in different parts of the country during last month, and, if anything, there will be a greater number in the present month. Appliances are so increased and multiplied nowadays that any of the principal makers could furnish a section of a respectable exhibition single-handed. Given Messrs. John Wright & Co., T. Fletcher, or H. J. C. Davis for the heating and cooking stoves, Messrs. W. Sugg & Co.'s elegant stand of chandeliers, burners, etc., with numerous varieties of

artistically-designed globes and shades, representing all the colors in the rainbow, and reminding me of the jewel cave in Aladdin—one or two meters with glass cases, etc.—a few bottles of tar products—the whole illuminated by some of the apparatus which has rendered famous the names of Sugg, Siemens, Wenham, Clarke, etc., and we have a collection that will not fail to attract a goodly crowd of visitors. Having got these together, fittings sound, ventilation sufficient, let the gas engineer go out into the highways and hedges, and bring in the halt, the lame and the blind, in the shape of the half rusted up, dirty iron burner, yielding a flickering flame in shape like to a forked hazel twig—the taps and hinge-joints that have an appreciable amount of play in their fitted parts—the badly-blown joint with more solder inside of the pipe than there is out—the cheap composition pipe that will not bend at right angles without going as flat as a money-box slit in interior section—the length of pipe (¼-inch internal diameter) that was expected to supply enough gas for 15 burners and a cooking stove, when used in conjunction with a two-light meter, and so on. He will know where to find them. Put these in a prominent place, so that the public can enjoy the contrast, and appreciate the moral tacitly conveyed. Such are the exhibitions provided by the managers of gas undertakings.

But we must not overlook the cookery lectures, which are as important, from our business point of view, as any other feature of the exhibition, because they attract the ladies. To one who is accustomed to visit kitchens of all sorts and sizes, in search of "the best place to fix the gas stove," these demonstrations of cookery are pleasing, apart from the fact of gas stoves being exclusively used. When we see a lady, with one or two assistants, conducting culinary operations without soiling her fingers, with appliances perfectly clean and in apple pie order, it is gratifying to reflect that the sloppy, greasy, wasteful modes of proceeding that are too frequently to be met with in kitchens are not obligatory, and that the time may come when this important room of the house, with its adjoining scullery, may be as tidy and as neat as any other part. Be this as it may, lessons on cookery are in favor with the fair sex just now, and gas undertakings act wisely in taking advantage of what may possibly be only a passing craze for the furtherance of the use of gas stoves.

Such, indeed, is the popularity of these exhibitions and lectures that in our larger towns there are some indications of the same sort of thing being carried out in a more permanent form. Undoubtedly they assist the development and increase of the gas industry in many ways, apart from the direct increase in the consumption of gas. They smooth down differences between gas companies and their customers by creating a common bond of interest, and prominently setting forth the fact that the former, no less than the latter, are interested in cheap gas. They direct attention to the saving that may be effected merely by applying reasonable care and intelligence in respect to the quarterly bill. And besides all this, they act as an attractive advertisement, and as such cannot fail to secure fresh business. These are some of the reasons which incite busy gas managers to take upon themselves the large amount of trouble, worry and expense entailed in the carrying out, on a respectable scale, of an exhibition of gas appliances.

Perhaps no other subject has lately trespassed so much upon the columns of the *Gas Journal* as that of tar firing; and this may be accepted as evidence of the interest taken in it. During the past few months a perfect shoal of letters, articles and papers on this topic has appeared, and they furnish a complete answer to the question to which I have occasionally directed attention, "What shall we do with our tar?" by showing that it is quite practicable to use it as fuel under the retorts. It may be injected by means of a steam injector, or simply trickled in at the upper part in a regulated stream, and each system has its advocates. At most of the London gas works a regular proportion of the tar produced is being thus used on the works; while in some remote country works the sale to contractors is altogether stopped, and it is intended to use not only all that is made, but also the accumulated stock. At the Salisbury gas works I am at present decreasing stock in this manner at the rate of half a ton of tar per day. The consumption of tar ranges from 20 to 30 gallons per ton of coal carbonized, and even at the lowest prices obtainable for coke, it is worth four dollars per ton to burn; that is to say, each ton of tar used as fuel replaces that equivalent of coke, which is thus free for sale.

We know that tar used to be burnt a quarter of a century ago and more, but then only as a last resource—many preferred to run it away down any convenient drain rather than be bothered with it. But the attention that has lately been directed to it in the light of our advanced knowledge in combustion, especially in its chemical aspect, has altered the complexion of the matter. Even if prices again run high it is likely to become a question, apart from money value, whether tar is not a more manageable fuel for heating retorts than coke. The saving in labor is considerable, as there is no clinkering or firing up. One intelligent man, or even a lad, could keep 20 or 30 tar fires going. With proper precautions the supply pipes and taps will not stop up, though they need periodical cleansing. Very often all the labor bestowed on a tar fire, in the course of a 24-hours' run, will be a scrape around the furnace with a light hoe once in every two hours or so, to detach any ash or pitchy matter that may accumulate.

The late Lord Redesdale, who died a few days since at the ripe age of 81, will long be remembered in connection with the gas legislation of this country. For 35 years he has held the position of chairman of committees of the House of Lords, and in that capacity has examined the various private bills that came before the House. Remarkably keen, accurate, and far-seeing in judgment, and withal so decided as to sometimes appear arbitrary, both gas companies and gas consumers have reason to look back upon his memory with gratitude and respect, as that of one who with scrupulous care and rigid honesty weighed the merits of the various conflicting interests before him, and awarded to each his own. No stock-jobbing or watered capital passed undetected by him, and though at the time his restrictions upon the issue of new capital, in the shape of insisting that it should be sold by public auction to the highest bidder, any premium realized above the nominal value of the shares being considered as non-dividend bearing or dead capital, and also the limitations of the rates of dividend to 7 per cent., were regarded as rather hard upon investors; still, after many years experience it must be admitted that they have contributed largely toward the present satisfactory position of the gas industry. On the other hand, it was useless for any body of local authorities to try for an unfairly hard bargain, or to attempt to impose unduly onerous conditions upon the new undertaking. The views expressed by Lord Redesdale, in his official position, naturally carried great weight; and probably no other single individual has exerted so much influence on the procedure of Parliament in respect to gas undertakings. His lordship was eccentric in habits and dress, probably because he was an obdurate bachelor; but both as regards his public and private character, even those who opposed his views cannot but speak of him with respect.

The sulphate of ammonia producers association have held a general meeting, at which a report giving an account of the first six months' working was read by the Honorary Secretary, Mr. G. E. Davis. The report certainly takes credit for a great deal. It states that the weekly circular issued by the association "has had more to do in raising prices to their normal level than most people imagine." The operations have been weakened from two sources. One is that several sellers of sulphate do not belong to it, consequently are ignorant of changes in the market, and frequently sell considerably below current rates; and the other is that the Scottish producers have preferred to form an association of their own. The fact that sulphate is being more used for home consumption is noted; and then a table showing the daily prices during the first three months of this year is given. This is principally interesting as showing a steady rise, with few and slight exceptions, from a rate of £10 10s. per ton on the 1st of January to about £14 on the 31st of March. In respect to the export trade, it is stated that more than 12,000 tons, or about one-half the total exports, were shipped from London, nearly 7,000 tons from Hull, 3,000 from Leith, a similar quantity from Liverpool, and small quantities from other ports—in all, some 25,000 tons during the three months. The report concludes with considerations as to the possibility of increasing the home trade. They have printed a handbill, of which upward of 80,000 copies have been circulated amongst farmers in the United Kingdom. It is certainly remarkable that this large quantity should be exported, while at the same time large quantities of other nitrogenous manures, such as nitrate of soda and Peruvian guano, are imported from South America for the use of our home agriculturists. The remarkable rise above noted seems to give promise of better times for sulphate producers, at any rate during the summer, than have been known during the last few years. The figure of £15 or more per ton will probably be touched before midsummer. Indeed, I am told that sales in advance have been offered at this figure.

One feature in the progress of the demand for gas in our principal towns has become rather harassing. It sometimes happens that a gas works is established at some distance from a railway or canal, and that in course of time it becomes surrounded with buildings. As the business increases the cost of cartage of coal becomes a serious item. The consumers clamor for gas as cheap as that supplied in neighboring towns, and the engineer of a works three-quarters of a mile or so from the nearest depot is placed at a great disadvantage as compared with one who can carry sidings direct from the railway to the front of the retorts. The cost of cartage may represent, one way and another, several cents per 1,000 cubic feet of gas made. The Aberdeen Corporation, whose works are situated about half a mile from the docks, and three-quarters of a mile from the railway depot at which their coal is delivered, are about to make a bold attempt to deal with this difficulty by constructing a street railway, capable of carrying trucks and engines of the ordinary gauge. It will be half a mile in length, exclusive of sidings, etc., and will pass through the center of several public streets; and where these are not of sufficient width to accommodate the ordinary vehicular traffic on each side they will be widened. The coal traffic will be limited in respect to speed and hours of running. The Aberdeen Corporation are to a great extent able to do as they like on their roads; but if a project of this

nature had emanated from a joint-stock company it would probably have been received with strong opposition. It is fortunate, then, seeing that many undertakings are in a similar position to the Aberdeen gas works in respect to coal supply, that a Corporation has formed a precedent for future schemes in a similar direction.

Testing Water-Tight Compartments.

An English exchange says that, warned by the fate of the Oregon, the Russian Government has been inaugurating an exhaustive test of water-tight compartments, which it contemplates applying to all new vessels, and probably to older ones as well. The man-of-war selected was the corvette-cruiser Vitiaz, which was finished last autumn, and is under sailing orders for the Pacific this month. Five weeks ago an intimation was conveyed to the dockyard authorities at Cronstadt that the water-tight compartments would be tested in succession, and orders were given to survey them afresh and make good any defects that might be discovered. If the official report is to be believed, every effort was made to meet the wishes of the Admiralty, yet when the compartments were actually filled with water the fluid gushed through numerous apertures which had escaped the eye, and in some cases to an extent that would have been troublesome at sea after a serious accident. To secure perfection several of the compartments were filled two or three times, and it was only after a deal of door-adjusting and leak-stopping that the corvette was pronounced fit to proceed to sea. A final test was then applied in the presence of the higher Admiralty authorities, a number of the nine large water-tight compartments being filled at once without any leakage. Besides insuring the rectification of all defects in the water-tight compartments, it is claimed in the report that the tests have proved of great service in training the crew; they have promoted confidence in the buoyancy of the vessel, and have led to several improvements of an important character. It has been suggested that in this year's naval manœuvres in the Baltic the tests should be continued by ordering so many of the water-tight compartments to be filled, in the event of a torpedo cutter approaching within hitting distance of a man-of-war; but the defects revealing themselves in the case of the Vitiaz have made the authorities apprehensive of ill-results, unless harbor tests are applied beforehand.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

Street Lighting at North Adams, Mass.—Brother Frank S. Richardson, of the North Adams (Mass.) Gas Light Company, has been in trouble again; but, as is usual with him, the cause of the trouble came to grief, and the normal placidity of Richardson's features is once more attained, and he may cast, on a clear, sparkling morn, undisturbed, a philosophical or calmly critical glance at the stern view presented by Greylock's towering form. And while in such mood he may be forgiven for not caring how stern a front Greylock may present, provided the public lighting of North Adams be allowed to remain in the custody of the North Adams Gas Light Company—which latter, we must say, looks like a "sure thing." It was supposed that the rebuff received by the electrical promoters from that city in 1885 would have quieted them for good; but the ordinary run of Massachusetts electrician is not easily "cut out," and "short circuiting" never harms him a particle. His insulation is perfection, as also is his cheek! At any rate, the '85 check was speedily forgotten, and with the quickening impulse afforded by the vernal suns and showers, the North Adams Electric Lighting Company found itself regalvanized to the point where its representatives implored the Fire District Committee (the title of the lower municipal body of North Adams; the higher body being known as the Prudential Committee) to recommend to the Prudential Committee that the principal streets be illuminated by electricity instead of gas. Counselor E. H. Beer, on behalf of the petitioners, argued strenuously in favor of his clients. He claimed that many of the "best citizens" were in favor of the proposed substitution. He admitted no fault could be found with the quality of the gas lights, but argued that "intrinsically" electricity was far superior to gas. Electricity, said Mr. Beer, had been criticised on account of its unsteadiness (in fact small beer has often been charged with causing an unsteady gait on those who consume it), but the speaker explained that the "flickering was due to deficient power in the dynamo, and was not a necessary accompaniment of the arc light." And while we are glad to know the wavering is not a "necessary accompaniment," we are, nevertheless, bound to confess that it is a "constant companion" of the cheerless arc, and would express the hope that a speedy divorce will be decreed between them—if Council Boards continue to insist that public arc illumination is to remain with us much longer. Lawyer Beer, in conclusion, avowed the city would not have to incur an excess in cost over the gas charges of more than $1,000 per annum—a small sum surely when the vanities of the "best citizens" were to be so softly tickled. Gas man Richardson said, in reply, that figure it as they would or could, the additional expense (and he cited a sample or two of the districts in which it was suggested the changes in lighting conditions be made) must inevitably be in the proportion of at least 3 to 1. Mr. Geo. M. Darby, financially interested in the success of the local electric lighting venture, urged that this company receive encouragement from the local authorities. He, in approved style of lachrymose intonation, explained, "Other large towns use electric light because they thought it was more economical than gas; and the North Adams electric company labored under a decided disadvantage because it was obliged to start in with so small a business." Mr. Darby might, with equally good logic, have asked the committee to pay the running expenses of the electric station. Messrs. Preston, Tinker, Bracewell and Barber also took part in the discussion. Finally a vote on the question was reached, and the disposition made was to relegate the subject to the care of the Prudential Committee, with the advice that that body should "light the streets in the most economical way." Hence we must conclude that Brother Richardson has upset Mr. Beer's can of malt.

Annual Election La Crosse (Wis.) Gas Light Company.—The annual meeting of the stockholders of the La Crosse Gas Light Company was held at the office of the company, 707 North Third street, on date of May 10th. The reports of company's operations during 1885 show a steady gain in business, and there is every reason to expect a continuance of success and prosperity in coming year. The ballot for officers resulted in the election of A. H. Anderson, as President; Geo. McMillan, as Secretary and Superintendent; and W. L. Crosby, as Treasurer.

The "Standard" Washer-Scrubbers.—Notwithstanding the fact that the Philadelphia Gas Trust officials are inclined to sneer at the improved methods of scrubbing and washing gas pursued by those in charge of gas plants operated by unhampered and progressive gas engineers, we are obliged to assert that the sneer carries small effect. Those who wish to purify their gas thoroughly, and, at the same time, concentrate the ammoniacal liquor cheaply, and up to a good commercially convenient point of strength, still remain advocates of the employment of the "Standard" machines. Among recent orders received by Mr. Geo. Shepard Page for the erection of these useful vessels, we may mention those authorized by the Hartford (Conn.) and Toronto (Can.) Gas Companies, as also one from Bridgeport, Conn. The first two are calculated to pass one million cubic feet per diem; the Bridgeport order being based on a duty of one-half million cubic feet. Abroad the popularity of the "Standard" constantly increases; and the home company now has on its books orders for vessels of the following daily capacities: Gas Light and Coke Company, London, England, one of three millions cu. ft.; Richmond (Eng.) Gas Company, one of a million cu. ft.; Bournemouth (Eng.) Company, one million cu. ft. The new gas company at Melbourne, Australia, will put up one rated to pass one million cu. ft. Four companies operating in Germany have ordered specimens of the "Standard"—one of which is to pass one-half million cu. ft.; the second is rated to a duty of 400,000 cu. ft.; while the third and fourth are to be of 200,000 cu. ft. capacities each.

Annual Election, Glens Falls (N. Y.) Gas Light Company.—The annual meeting of the Glens Falls Gas Light Company was held on date o Wednesday, [illegible]ay 12th. The following named gentlemen were chosen a Board of Directors for ensuing year: Messrs. J. Ordway, F. A. Sabbaton, P. S. Merrifield, H. A. Brooke, R. Kipp, D. H. Cowles, and E. T. Johnson. The organization proceedings resulted in the choice of Jones Ordway, President; F. A. Sabbaton, Vice-President; E. T. Johnson, Secretary and Treasurer; and H. A. Brooke, Superintendent.

Gas and Water Works for Dover, N. J.—The citizens of Dover, having determined that their "backwoods" condition should be relegated to the cover of the past, are at last on the forward march. Like the prudent commander he is, the Mayor concluded, in that the rigors of the journey would be ameliorated were the rank and file to be provided with water and light, to call upon Capt. W. H. White, who has been selected to preside over the commissariat, with instructions (in the shape of a franchise) to erect a gas and water works. The items in the franchises bind the town to maintain 60 street lamps, for which the sum of $24 per annum each is to be paid; also 50 hydrants, at $40 each per annum. The plants are to be finished by Nov. 1st; and it is expected that $75,000 will be required to complete the work. Dover is in Morris county, N. J., and on the Rockaway river. It is about 22 miles west by south of Paterson, and is intersected by the Morris Canal and the Morris and Essex branch of the D. L. & W. Railway. It is rapidly attaining importance as a manufacturing center.

The Centrifugal Pumps at Mare Island (Cal.) Navy Yard.—From a communication recently received from a correspondent we learn that the centrifugal pumps (designed and built by the Southwark Foundry and Machine Company, of Phila., Pa.), furnished the U. S. Government for use in

the Mare Island Navy Yard, are giving unqualified satisfaction. In his mention of the subject our informant says: "The cofferdam of the Government dry dock at Mare Island having been removed, and an iron floating gate placed in position, a board of officers of the Navy Department was able, on the 26th of April last, to conduct the official test on the pumps for discharging the water from the dock—the discharge being through an oval culvert, of 11 feet maximum diameter and 500 feet long, into San Pablo Bay. The dimensions of the dock are as follows: 529 feet long, 122 feet in width at widest part, 36 feet deep, with a capacity at mean tide of 9,000,000 gallons. The pumping machinery consists of two 42-inch centrifugal pumps, with runner 66 inches diameter, and 42-inch discharge pipe, each driven by a vertical engine of following dimensions: Cylinder of engine, 28 in. diameter by 24 in. stroke. The engines during the test ran at from 140 to 160 revolutions per minute, and the conditions of the contract required a mean discharge from both pumps of 80,000 gallons per minute. The actual result as shown in the official report was a mean discharge of 112,922 gallons, both pumps running together, the greatest or maximum discharge being 137,797 gallons per minute. The dock was completely drained, from a level of 26 feet above the floor, in 55 minutes. The plant also included a centrifugal drainage pump, with discharge pipe of 8 in. diameter, for the purpose of keeping the dock free from water chargeable to ordinary leakage. The subsidiary pump, according to the official figures, discharged 2,192 gallons per minute. During the trial careful inspection of the machinery showed freedom from unusual vibration and smoothness in action, as the result of well proportioned and truly balanced parts. The uniform velocity in revolution indicated equal discharge from all openings in the runner."

To Build the Holder.—The Stacey Manufacturing Company, of Cincinnati, Ohio, will build a new holder for the St. Paul (Minn.) Gas Light Company. It is to be a triple lift, with a dimension of 90 × 75 feet.

A Line from Darby, Pa.—Mr. C. F. Cattell, who is in charge of the fortunes of the Darby Gas Light Company, writes us that he is employing what is known as the Newell process, and is perfectly satisfied with the results obtained.

A Successful Bidder.—Mr. Adam Weber, proprietor of the Manhattan Fire Brick and Enameled Clay Retort Works, New York city, is nowise inclined to complain of dull times, for contract after contract is being awarded him. Indeed, the East Fifteenth street premises at the present time looks like a veritable hive, and lacks only one thing to complete the truthfulness of the comparison—the entire absence of drones from in and about the establishment. Not satisfied with his already huge award of new work, Mr. Weber has taken unto himself the task of getting out 20 benches of sixes, to be fired on the regenerative plan, together with tubes and linings for twelve lime generators, all to the order of the Equitable Gas and Fuel Company, of Chicago, Ills.

A Word or Two about the Winona (Minn.) Plant.—Messrs. Randall and Bolcom have been visiting the East with the intention of determining what course should be followed in the rehabilitation of the Winona Gas Company's plant, which we regret to hear has been allowed to run down somewhat; although, in justice to the gentlemen above named, we must say that their executive action has been sadly hampered by certain stockholders who, in the past, were powerful enough to insist upon the penny wise pound foolish policy. Mr. Randall has been persistent in his endeavor to point out the true course, and his pertinacity is at last to be rewarded. While all the particulars are not yet mapped out in blue line tracings, the present developments are sufficient to warrant that Winona's to be perfected gas establishment will take rank with the best. It is the intention to reduce the price of gas to $2 per thousand, or a reduction of 20 per cent. from ruling rates. This of itself is an earnest of the progressive policy to be inaugurated. We may further note that the Van Depoele Electric Lighting Company's branch at Winona is anxious to dispose of its franchise and establishment to the gas company; but, judging from the fact that the former's contract with the city authorities—a five-year one, under which it maintains 60 arc lights—calls for a total yearly payment of but $7,500, we opine that it had better offer its wares to some other more likely purchaser—the city, for instance. We propose the name of the latter simply because many other Western boroughs seem to fancy the purchase of traps of that description—possibly with the ultimate intention of starting in in the junk business on the ground floor basis.

How the Old Chicago (Ills.) Gas Company Spreads.—Mr. Theobald Forstall (the man in whom a change of location, from the semi-tropics to a spot where the mercury during one-third of the year is so "tired" that it nestles in the bulb at the bottom of the tube, but served to rejuvenate) was in the Empire City a short while ago, smarter, brighter, and happier than ever. When asked as to whether President Watkins and himself had decided upon the wording of the epitaph that was soon to be inscribed over the doorway of the Dearborn street portion of the old Chicago Gas Light and Coke Company's remains—the "new" Equitable Company's managers assert that it is to be war to the death—we were greeted with the reply, "No, sir; we are in the plight which still attaches to the tombstone of Emmett." And this we have freely interpreted to mean, "When the inhabitants of the Windy City cease to burn gas, then, and not till then, will the Chicago Company's epitaph be written." However, it looks as though the aforesaid Windy City wants more instead of less gas, since Mr. Forstall informs us that the new work of construction under way embraces the increasing of the carbonizing facilities at the North and South stations by plant calculated to send out an additional million of cubic feet per diem from each. Then, again, Messrs. R. D. Wood & Co., of Philadelphia, are under contract to complete a triple-lift holder, of a calculated capacity of 1½ million cubic feet, by the first day of next November; and, lastly, at least 15 miles of new mains will be added to the distributing system. Elegiac composers need not apply to Messrs. W. and F. just yet.

Done to its Death.—Some time since we had occasion to refer to a jewel in the way of gas legislation that was proposed by an Ohio Senator. Since then that legislative body has been struggling over divers proposed gas acts, but so far the travail has not even developed a mouse to show for the "pains." The "Dodd bill" was the last to die. *Requiescat in pace.*

The Electric Wires Caused It.—The "Small Talk" column of a Chicago (Ills.) newspaper asserts that "a letter received from an officer of one of the United States vessels cruising in Chinese waters says that the vessel caught fire three times from the electric light wires running through her cabins, while on her way across the Pacific." Some consolation may be derived from the knowledge that the planking of a ship in the United States service was sound enough to burn.

Amending Their Charters.—It is understood that the Massachusetts State Legislature has granted permission to the Charlestown and Newton & Watertown Gas Light Companies to make an amendment to their respective charters permitting them to engage in the business of supplying electric light. This movement appears to have taken firm hold in the East. Still, of course, the amendment of a charter in the direction named does not of necessity imply the purchase and operation of an electric plant.

The Cottage City (Mass.) Gas Works in Operation.—On the evening of May 12th the residents of Cottage City were first supplied with gas. As has before been noted in these columns, the new company resulted from the efforts of Mr. Burdett Loomis, of Hartford, Conn. The manufacturing plant—gas is made under the Loomis patented process—is located on Uncas street, and is complete in every detail. The daily maximum capacity is figured at 150,000 cubic feet; but, unless Cottage City grows with amazing rapidity, and out of all proportion to its past records—even in the matter of its temporary sojourners during the summer season—that sendout will not be reached for many a day. The holder room of plant is 50,000 cubic feet capacity, and something short of four miles of main constitutes the distributing system. The capital stock is fixed at $60,000, and the directors are Messrs. W. H. Cobb and J. A. Brownell, of New Bedford, Mass.; F. C. S. Bartlett, of Fairhaven, and B. Loomis, of New Haven, Conn.; and J. H. Mackenzie, C. Howland, and E. C. Almy, of Dartmouth, Mass. It might be further said the company has the right to furnish electric light, and it is the present intention to operate a 150-light station (arc plan) in time to meet the wants of the summer tourists, whose predilections in that vicinity run largely towards "camp-meetings."

How Fred. Egner Managed the Strikers.—Mr. Egner, Engineer and Superintendent of the Laclede Gas Light Company, of St. Louis, Mo.—a frequent and valued contributor to the pages of the Journal—has had the usual experience of later days in the matter of workmen who wish to exchange places with their employers; but Egner (whose experience in that line dates from the strike which took place among the hands of the old New York Gas Company of this city, in April, of 1873) knowing the remedy, did not scruple in applying it. On May 15th his retort house men—both "regular" and "chance"—to the number of 50, approached him at 10 A.M. and demanded their "rights." These may be summed up under the words, "Ten hours' pay for eight hours' work." Appreciating their dignity, and aware that "time flies," the astonished engineer was accorded ten minutes for consideration and decision. At the end of the "minutes" Mr. Egner returned them a flat refusal; and, with the exception of one foreman and one assistant foreman, out they walked; but before they had passed through the gate leading to the street their former employer shouted he would give them two hours to reconsider their ill-advised action, adding that those who failed to return within the two hours would never hereafter figure on the payrolls of the Laclede Company. None returned within the time set apart, and inside of eight hours new gangs were in front of the benches. Of course, there was some

tall "hustling" indulged in around that section of St. Louis; but ample police protection was afforded, and the substitution was so well effected that ordinary rate of pressure was carried on the mains during the whole time. On the afternoon of the 16th the strikers wanted to know what terms Mr. Egner would offer to induce them to return to work; and he replied to the effect that he was not offering terms, although he might be induced to listen to concessions on their part. On the 19th the men offered to come back to work on the old basis—12 hours' work for 12 hours' pay—but Mr. Egner declined to receive them. The new hands were fast becoming accustomed to their duties, and the Laclede engineer's practice has ever been to do the right thing. We congratulate him upon the fortuitous termination of his struggle with the strikers.

AN UNFORTUNATE ACCIDENT.—Mr. Henry Harthan, Supt. of the Selma (Ala.) Gas Works, has had a most surprising run of ill-fortune during the past year. First came the great bereavement experienced in the decease of his estimable wife; then flood and fire swept the Selma plant; and now we are called upon to chronicle a severe and painful bodily infliction th t has befallen him. He was in attendance at the recent annual convention of the Western Gas Association, and in response to our inquiries expressed the hope that the silver lining to the sombre experience of the near past would soon reveal itself; but it seems fate is not yet willing to release him, since on date of Monday, May 17, while attempting to board the 9:15 A.M. train as it was moving out of the Grand Central Depot, Cincinnati, Ohio, he slipped and fell with such violence as to fracture his right leg just above the knee cap. The 9:15 A.M. train is the Southern Express, and from that we conclude Mr. Harthan was on his way home. The sufferer was removed to the Betts Street Hospital, and the surgeons appeared to regard his case with much apprehension.

CHEAPER GAS FOR COLUMBUS, GA.—Mr. E. H. Jenkins, Supt. of the Columbus Gas Light Company, has made another reduction in selling rates at that point. The gross price, on 1st of May, was brought down to $3 per thousand, and prompt payment secures a rebate of 75 cents per thousand. It should be borne in mind that Mr. Jenkins has been in charge at Columbus only two years, and that prior to his advent there the gas company had managed to become a most obnoxious institution in the eyes of the people; and further, Mr. J., on assuming control of the enterprise, assured the residents that, if they would help him to increase his send-out, he would lower the selling prices and increase the quality of the article supplied them. They did not believe him at first, but his straightforward course has since convinced them of his honesty of purpose—the result of such conviction being that the Columbus Gas Company is making money now, and will continue to make it in the future, or while its promoters live up to their promises. Here is what one of the Columbus papers said recently about the local gas suppliers: "We are glad to hear of the success attending their efforts. The gas is good enough to do away with all old prejudices engendered by the inferior gas of a few years ago."

THE GAS IS UP TO AND BEYOND THE STANDARD.—Some of the fault-finders up in Toronto, Canada, recently insisted that the gas sent out by the Consumers Gas Company was not up to the legal requirement in the matters of purity and quality. Mr. Aubin, the official Gas Inspector of the Dominion of Canada, in compliance with direction from the office of Inland Revenue, made examination of the gas product supplied, and reported the same to be, on an average, 2½ candles in excess of the standard. The product also complies in every way as to the degree of purity exacted by the statutes.

Correspondence

[The JOURNAL is not responsible for the opinions expressed by correspondents.]

The Thomson-Houston Company's Tactics at Newburgh, N. Y.

CONSUMERS GAS COMPANY,
NEWBURGH, N. Y., May 21, 1886.

To the Editor AMERICAN GAS LIGHT JOURNAL:

This letter is forwarded you simply from a desire on the part of the writer that every gas company should be made aware of the recent operations of the Thomson-Houston Electric Company in our city, in order that the former may be enabled to comprehend and meet the tactics of the latter. The electrical promoters equipped a small plant at Newburgh, at a cost not to exceed $10,000, and we will say nothing, however, as to the amount of stock issued. They started out on the business of canvassing for consumers, and originally offered to supply each light on the basis of a charge of ten dollars per month. In the meantime they busied themselves earnestly in the direction of attempting to "work off" their shares. They told of the wonderful dividends earned elsewhere by other branches of the parent company, and assured those whom they interviewed on the subject of share purchases that the Newburgh branch would undoubtedly secure a contract for the lighting of our city's streets. Finding few to seize the tempting bait so generously dangled, the promoters speedily offered their lights at much lower figures than those initially offered; but yet the enterprise flagged. On Monday last (May 17th) they resolved upon making a "grand effort." Their representatives appeared before our Common Council and submitted a proposition to light that portion of our city now illuminated by gas with their arc lights, and agreed to supply the latter at a charge of six dollars per month. They figured it out that 73 arcs would displace 368 gas lamps. Their ingenuous offer was exposed by the gas company's counsel—Judge Hirschberg—most thoroughly. He confronted them with *their own* proposition, formerly made by them to the gas company, in which they asked us to adopt their system, and in which proposition they clearly showed the actual cost of production to be greater than that sum sought to be received from the city. They did not deny the facts as presented by our counsel, and the final result was that the council, by a vote of six to two, awarded the lighting contract to the Newburgh Gas Light Company, at figures equal to those paid last year.

I enclose you Judge Hirschberg's argument, as also an editorial article on the subject, which appeared in the Newburgh *Daily Journal*, on date of Tuesday, May 18th. The insincerity of their offer was made more apparent when it is explained that they proposed to light the district now illuminated by naphtha lamps in consideration of receiving $12 a month for each arc—or double the price at which they would illuminate the gas district. Many of the naphtha lights are in close proximity to the gas lights, and equally near to the electric lighting company's generating station. The real animus of their proposition no doubt was, having secured either one of the coveted contracts, to facilitate the unloading of their shares.

It would be well for officers or managers of gas companies throughout the country, when the Thomson-Houston Company's agents make their appearance, in the cities or towns operated in by the former, and offer to supply light at a charge anywhere between 37 and 80 cents per arc per night, to call the attention of the local authorities to the fact that at Newburgh the same company offered to do similar work for $6 per post per month.

Very respectfully, JNO. C. ADAMS, President.

[In return for President Adams' courtesy in this matter we can but reply to him that his promptness in posting us is much appreciated. We might suggest that other gas men who have like experiences should follow a similar course; and, in that event, we make bold to say there would be less occupation for those who seem to delight in singing over the exceeding great value of investing money in the shares of suburban electric lighting ventures—even admitting that the ears for whose benefit the songs were piped were attached to the collective head of a suburban Board of Council. The editorial article referred to by President Adams is appended.—ED.]

"The matter of the street lighting was at last settled by the Common Council at the meeting of that body on Monday evening. All but two of the Aldermen declared by their votes their belief that what is known as the 'gas district' would be more satisfactorily lighted by gas, as the lamps now in use are located, than by the new light, in the manner in which it was proposed to distribute the latter. All but two of the Aldermen (though not the same two in this case as in the other) declared by their votes their belief that what is known as the 'naphtha district' would be more satisfactorily lighted by continuing the present system than by adopting the new light. The 'claims' of the competitors to public consideration were fully set forth by their respective advocates, and will be found outlined in the report published in other columns of this issue. The gas company is a large taxpayer, and much of its stock is held by citizens of Newburgh. It has reduced the price of gas to the city from the rate of $45 per post for street lighting to that of $32. The rate per thousand to consumers has also been reduced by nearly 50 per cent. The street lights are distributed where, from an experience of many years, they are found to be most needed, and there is little complaint that the streets are not adequately lighted, or that a poor quality of gas is supplied to the consumers. On the other hand, the electric light company is a young organization, and is also a taxpayer. Much of its stock is held in this city. Its light is a good one of its kind. It was proposed to displace with each one of its lights five gas lamps. Seventy-three arc lights were expected to do the work of 368 gas lights. By this arrangement it would be necessary to place the former at long distances apart from each other, leaving comparatively dark spaces between. This, the Aldermen evidently thought, would be less satisfactory to the public than the present arrangement, by which the lights are well distributed and no portion of the district is left in darkness. The same consideration affected the action of the Council in the case of the naphtha district. The question has thus been settled for another year. At some time in the future, perhaps, the city will decide to try the electric light. For the present the decision is not to discard what has been a faithful servant in favor of a youthful competitor."

It is reported that on May 22 negotiations were concluded which insures the transfer of the Kansas City (Mo.) Gas Light Company to a syndicate of St. Louis (Mo.) capitalists. It is understood that the new management will signalize its accession to control by making a substantial reduction in selling rates.

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WEDNESDAY, JUNE 2, 1886.

A Councilmanic Advocate of Kerosene Oil.

Mr. Fleidner, of Portland, Oregon, is a member of the Portland City Council; and our information goes to show that he is also the owner of an establishment devoted to the aims, uses and ends of the tonsorial art or craft. Barber Fleidner is an adept in the matter of removing the stubble from the chins of the Portlandites, and the ease and dexterity with which his nimble scissors mows down a too-lengthy hirsute development on the heads of his customers is but little short of marvelous. But if we have to gaze in wonder over his proficiency in his chosen "art," it is when we look upon his course as a city father that the wonder changes to awe—for he is a most conscientious and progressive councilman. Not long since, the barber-councilman declared in favor of the abolition of the practice of lighting the city's streets with gas. He urged that the gas burners be taken out of the lanterns, and that their places be supplied with kerosene lamps, to the end that economy and efficiency of street illumination might thereby be secured. We believe this barbaric crusade against the fortunes of the Portland Gas Light Company, on the one side, and a no less fiendish assault on the noses of the citizens on the other, came to grief. However, and as if to revenge itself on the defeat encountered, we learn that Fleidner's latest experience in the kerosene oil line was like unto the following—if the columns of the *Oregonian* are to be trusted:

"Councilman Fleidner has had some experience in the matter of light since he has been in the council, having figured on the advantages of gas, oil, and electricity as mediums for lighting streets; and he has had a new and somewhat startling experience in chandeliers at home. The other evening he sat down to his dinner. It was a festive occasion of some sort, and his ample board was decorated with the wealth of silver, cut glass, amberine, and all the other luxurious fittings and furnishings which become the table of a councilman of a city of the importance of Portland. Complacently he seized his ivory-handled, saber-bladed carver, and was about to begin operations, when someone thought it advisable to pull the crystal chandelier a little lower. In trying to do this the hook in the top of the chandelier pulled out, and down came lamps, shades, and the whole business, smash in the center of the table. It is useless to attempt a description of the destruction which took place. The lamps, of course, broke, and the oil took fire, and the deuce was to pay generally. Mr. Fleidner threw, metaphorically speaking, a wet blanket over the affair, and it will be best to let that blanket hide the wreck from public gaze. A blanket, like charity, covers a multitude of sins—and broken dishes."

A New Feed-Water Purifier.

The Patent Steam Boiler Company, of Birmingham, England, according to the *American Engineer*, have brought out a new feed-water purifier, the action of which is based on the rapid heating of the water to boiler temperature, so as to cause deposition of its contained impurities. It consists of a cylindrical chest, containing a number of trays on which much of the impurities are deposited, serving as a steam chamber to the boiler. The feed-water entering at one side of the apparatus, passes on through the perforated plates and enters the boiler from the other end of the chest. The perforated plates have a mechanical action on the impurities, aiding to deposit them at the bottom of the drum, where they can be blown out in the usual way, and not being exposed to the direct action of the fire, they cannot bake hard. The feed-water is heated by injecting it, with the mixture of steam and hot water arising from the boiler, into the chest in the ordinary process of circulation, and it is calculated that this heating will be sufficient to separate the carbonates and sulphates. It is well known that it requires a temperature of 380°, when a water contains sulphates, in order to deposit the salts, but this may be greatly facilitated by the use of a little soda.

Death of Arnold Mellert.

From *Iron Age* we learn that Mr. Arnold Mellert died recently at Reading, Pa. Deceased was the well-known chairman of the Mellert Foundry and Machine Company, and the Reading Foundry Company. He was born in Germany, June 24, 1824. In 1837 he came to Reading and resided there ever since. He was at first associated with his father as a locksmith, after which he engaged in the stove business. Later he, with his father and brothers, conducted a foundry at Reading, and afterward he formed a partnership with Thos. L. Addison in the machine business, subsequently becoming the senior member of the firm of Mellert & Kinsey, and then the two companies of which he was a leading member at the time of his death.

The Market for Gas Securities.

Holders of Consolidated gas have been on the anxious seat ever since Governor Hill signed the Reilly bill fixing selling rates for gas in New York city at the figure of $1.25 per thousand. The companies will comply with the new regulations; but in the meantime (and our information is based on the best possible advices) it is quite certain the validity of the enactment will be tested in the courts. The dividend just declared (a sem.-annual of 1½ per cent.) was more than doubly earned on the business of the past six months; and it is well to remember that the company must, therefore, possess a handsome cash balance. The noon price of to-day (May 29) is 76¾, but the tone of the market is most uncertain. Careful figurers assert that, at a selling price of $1.25 the Consolidated Company can earn a dividend of 4 per cent. If this be the case the shares are worth 90. We advise those who can possibly do so to purchase at present market rates with a view to averaging; and have no hesitation in saying that the lowest point in quotations has been made. Brooklyn shares are still weak and erratic. The following Brooklyn shares were sold at auction: Williamsburgh, 44 at 142: 60, Citizens, at 80; 200, Peoples, at 75; 2, Metropolitan, at 96½; $8,000 Williamsburgh bonds, at 112½. Paterson (N. J.), Peoples, 26 shares at par.

Gas Stocks.

Quotations by Geo. W. Close, Broker and Dealer in Gas Stocks.

16 WALL ST., NEW YORK CITY.

JUNE 3.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share.

	Capital.	Par.	Bid	Asked
Consolidated	$35,430,000	100	76¾	—
Central	440,000	50	70	—
" Scrip	220,000	—	47	57
Equitable	2,000,000	100	—	135
" New Stock			150	155
" Bonds	1,000,000	—	107	110
Harlem, Bonds	170,000	—	—	—
Metropolitan, Bonds	658,000	—	113	—
Mutual	3,500,000	100	115	117
" Bonds	1,500,000	1000	104	107
Municipal, Bonds	750,000		—	—
Northern	125,000	50	50	—
" Scrip	108,000			
Yonkers		50	51	55
Richmond Co., S. I.	300,000	50	—	92
" Bonds	40,000	—	—	—
Gas Co's of Brooklyn.				
Brooklyn	2,000,000	25	120	122
Citizens	1,200,000	20	79	81
" S. F. Bonds	320,000	1000	106	110
Fulton Municipal	3,000,000	100	157	—
" Bonds	300,000		104	108
Peoples	1,000,000	10	75	77
" Bonds	290,000	—	106	107
" "	250,000	—	103	—
Metropolitan	1,000,000	100	97	99
Nassau	1,000,000	25	—	128
" Ctfs	700,000	1000	101	102
Williamsburgh	1,000,000	50	140	145
" Bonds	1,000,000	—	112	114
Out of Town Gas Companies.				
Buffalo Mutual, N. Y	750,000	100	85	90
" Bonds	200,000	1000	95	100
Citizens, Newark	918,000	50	115	120
" " Bonds.	124,000	—	105	110
Chicago Gas Co., Ills	5,000,0000	25	130	140
Peoples G. L. & C. Co., Chicago, Ills	3,000,000		8	12
Cincinnati G. & C. Co.			184	187
Consolidated, Balt.	6,000,000	100	47¼	47¾
" Bonds	3,600,000		107	107½
Chesapeake, Balt.	1,500,000	100	75	77
"	1,000,000		100	102
Central, S. F., Cal.			67	—
Capital, Sacramento, Cal.			55	58
Hartford, Conn	750,000	25	132	138
Jersey City	750,000	20	155	160
Laclede, St. Louis, Mo.	1,600,000	100	85	90
Louisville, Ky	1,500,000	50	95	100
Montreal, Canada	2,000,000	100	181	182½
New Haven, Conn		25	172	180
Oakland, Cal			35	36
Peoples, Jersey City		—	25	30
" " Bonds			—	—
Paterson, N. J		25	90	—
Rochester, N. Y		50	75	80
St. Louis, Missouri	600,000	50	—	575
San Francisco Gas Co. San Francisco, Cal.	10,000,000	100	58¾	59½
Memphis (Tenn.) Gas	750,000	100	78	80
" Bonds.	240,000	100	103	—
Washington, D. C	2,000,000	20	212½	—
Wilmington, Del		50	199	210
Havana (Cuba) Gas Co.	3,000,000	100	8	—
" Bonds	550,000			